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FOR SCIENTIST AND STUDENT.

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VOLUME TWO.

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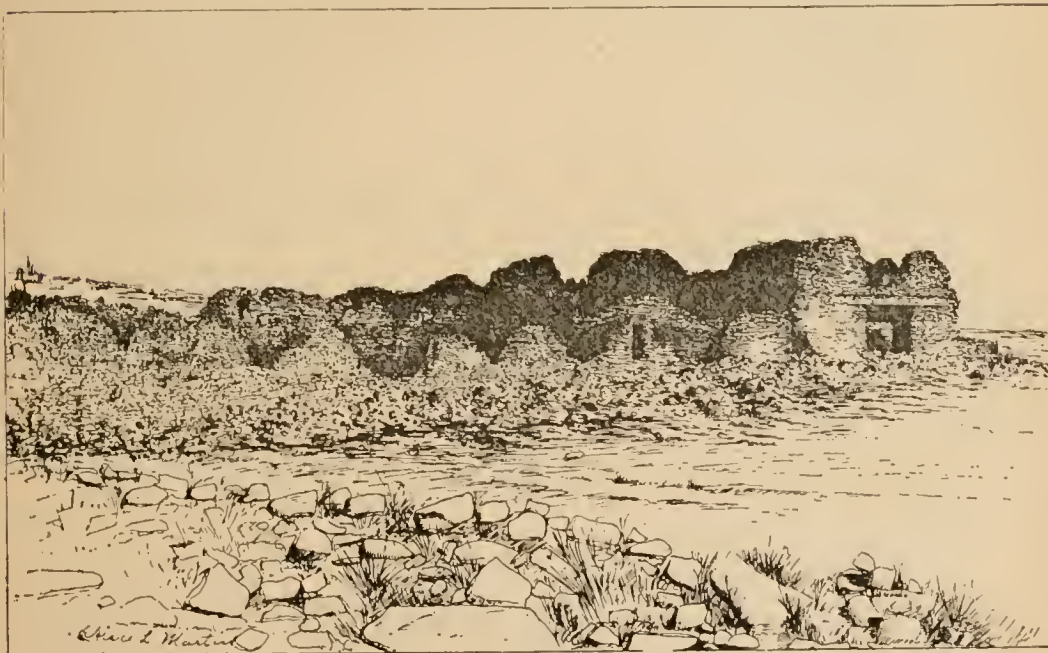


Fig. 1

THE RUINS OF GRAN QUIVIRA.

Down here, in the arid Southwest, the "storied land of menana" (tomorrow), where the degenerate descendants of Spain for centuries have, and always will, put off until day after tomorrow what they ought have done day before yesterday; down in the central portion of the territory of New Mexico, on the border of salt-encrusted plains, stand those world-famed, time-worn memorials of the Spanish invasion and occupancy of this part of America, the ruins of La Gran Quivira and neighboring Pueblos.

The extinct town of Quivira, once the center of a numerous and busy population, is so intimately associated with the earliest dawn of America's history, and the first introduction of exotic civilization in the new world; its name, so suggestive of the marvelous and mystical, recalls so many events incident to the discovery and subjugation of a new people, that no adequate account of its romantic past and ghost-like present can be attempted in the narrow limits of a magazine article.

I therefore offer to your readers simply my recollections of a visit paid to that desolate, enchanted region in February, 1894, with such observations and facts relative to the ruins and their surroundings that may not perhaps be familiar to the general public. Emerging from the narrow valley of the Rio Grande, anywhere south of Albuquerque, and proceeding eastward, we ascend to an arid plateau having an average width of twenty miles, and then hunt for a pass through the Cordillera that forms its eastern border with peaks of the Sandia, the Bosque, the Manzano, Oscura, etc., rising to an altitude of ten thousand feet. Having penetrated that rugged barrier we descend through pine-clad slopes and vales to the edge of the plains that extend, here and there wrinkled up into broken ranges of low mountains, through Texas to the Gulf of Mexico.

This vast, dreary expanse for more than a hundred miles is a hemmed-in basin, producing fine grass, but is almost waterless. Its few streams that flow at the spring melting of the mountain snows have no outlet, but sink in the thirsty sands. Proceeding from the foot hills of the Cordillera, around or over cut-off and detached ridges, we come to a chain of "ghastly white salines" that once were fresh water lakes, but are now dry beds of dirty salt. The topography of this basin is very peculiar. Extending from the Santa Fe mountains on the north to the Pecos eastward, and down to the Galinas, Corrizo, Blanca and other mountains far south and southeast, with the general conformation of a plain, its surface is corrugated by a labyrinth of disconnected ridges and abrupt unconnected valleys. As a landscape it has a strange, weird aspect—a death-like desolation. Along the eastern slopes of the Cordillera, among the broken, sparsely-wooded range of olden upheavals, were formerly a north and south line of Pueblos long since in shapeless ruins. The most prominent of these were Abo, Quarai and Tabira or Quivira, at points of a triangle distant from each other about thirty miles. The country here is much higher than that on the western side of the Cordillera, Quivira being 6047 feet above the ocean's level. The place is difficult of access, for until recently the nearest known water to it was thirty miles away, and the explorer had to carry not only provisions, but water for himself and animals. There is a lonesomeness about these silent, sandy valleys and rocky hills more cheerless than a midocean calm. But toiling along in discouraging silence the oppressive monotony is suddenly relieved by sight of the grand ruins of the church looming up ahead on the crest of the next rounded hill. (Fig. 1.) A writer in one of the popular magazines,* a few years ago, from this point of view thus gives his impressions: "I do not believe that the whole world elsewhere; nor that a Dore could dream into canvas, a ghostliness so apropos. Stand upon the higher ridges to the east and it is all spread before you, a wraith in pallid stone—the absolute ghost of a city. * * * * * It seems the rightful home of superstition, and here the wildest myth need not be ill at ease."

It is now the same as it was then, and bids fair to remain for centuries more unchanged, a splendid monument, though in ruins, of the fanatical devotion of Franciscan Friars who here planted the cross three centuries ago.

Our positive knowledge of these forgotten towns, Quarai and Abo, belongs to that part of American history comprised in the years between 1540 and 1680. Forty-eight years after Columbus first saw the coral reefs of San Salvador, Antonio de Mendoza, Viceroy of New Spain, sent Coronado with his 260 Spanish cavaliers and twice that number of friendly Indians, to explore the then unknown country lying north of Mexico. Failing to find the rumored treasures of gold in the seven cities (or Pueblos) of Cibola, Coronado marched, in quest of coveted wealth, to the conquest of Quivira, of which he had received glowing accounts;

*Chas. F. Lummis in *Scribner's*, April, 1893.

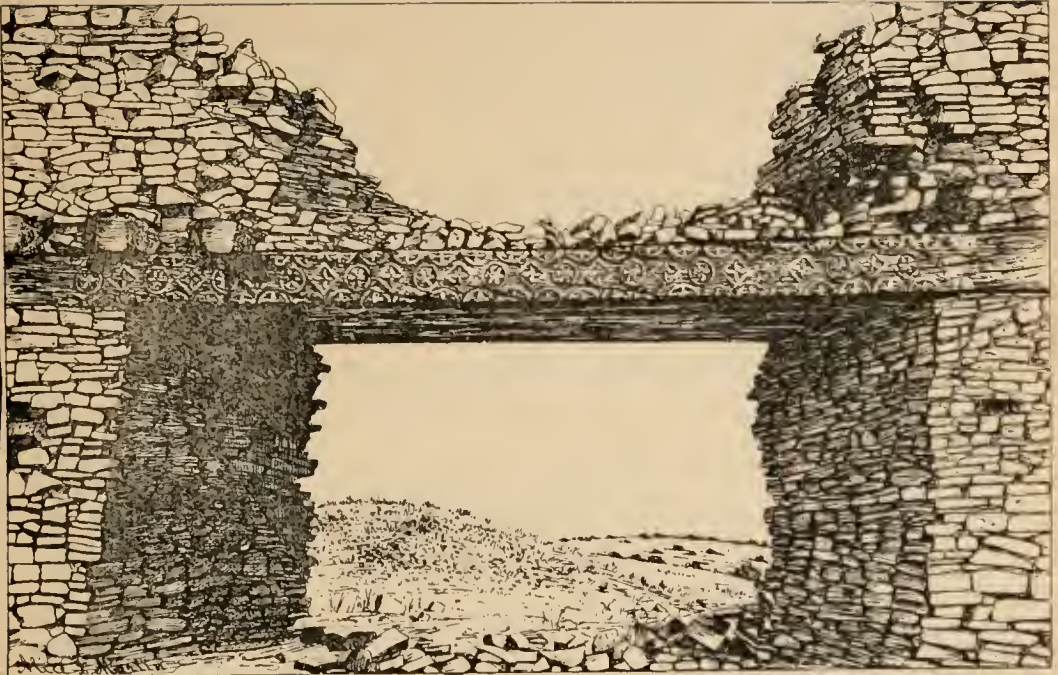


Fig-2

but, betrayed by his native guide, he wandered across the plains to the northeast until he reached—as is supposed—the Kansas river, from which point he returned disappointed to the Rio Grande and finally, in 1542, to the City of Mexico. Long before the discovery of this continent Quivira was, no doubt, the most opulent and important of the Pueblos east of the Cordillera range; and, though known to the first Spanish adventurers in New Spain through reports of friendly Indians, it was not visited by any one of the invading race until forty-one years after Coronado came upon the Rio Grande. Francisco Sanchez de Chamuscado was the first European to discover these sleepy towns of the salt plains, in 1581, and he was followed the succeeding year by Espejo. In 1598, Juan de Onate, who had been appointed Governor of New Mexico, received in person the formal submission to the Spanish crown of all those Pueblos.

On September 9th of that year—twenty-two years before the Pilgrims landed from the Mayflower on Plymouth Rock—Fray Francisco de San Maguel was assigned as priest to the Pueblos of Quivira, Abo and others; and soon thereafter began the erection of the stone edifices whose ruins now rank among the famous classic antiquities of America. The remains of La Gran Quivira—historic and prehistoric—are situated eighty miles southeast of Albuquerque, on a long, narrow, limestone ridge jutting out from the eastern hills into a level valley of limited extent; and on the crest of this ridge, 200 feet above the plain, stands the slowly crumbling walls of the great church and monastery adjoining. Of the ancient Pueblo nothing has survived but shapeless mounds and wave-like elevations of the surface, with here and there a fragmentary basement wall, denoting where obliterated habitations of a vanished people had been. But the temples of the new faith raised here by ruthless usurpers to supplant heathen fire-worship, and adoration of the sun by the simple natives, have received gentle

treatment from this Egypt-like climate. The buildings erected by compulsory Indian labor, directed by sagacious Spanish priests, were all constructed of stone, uncut, but broken smoothly, and evenly laid in mud mortar. There were two churches, the smaller one, probably the first built, and the monastery, a huge, rambling adjunct of the great church. This larger edifice was projected on the same plan as all the early Catholic mission churches in Spanish-America, that of a cross, with an extreme length of 140 feet. Its walls, six feet in thickness, are still in perfect alignment and intact to the height of twenty-five feet. At the northeast corner are the ruins of what appears to have been a bell tower, at the base of which is a recess in the wall two feet square, opened in latter times—so the legend runs—by an old priest from Mexico, who abstracted therefrom certain mysterious parchments and other objects of great value. The floor measurement of this great house is 4978 square feet, and was laid in neatly-joined limestone flags. A gallery twenty feet wide extended across the building on the inside over the front door, twelve feet above the floor, resting on square pine beams ten and a half inches wide by eight and a half inches thick, one end of each fixed in the front wall and the other laid on a larger beam, 10 by 16 inches square, reaching across the thirty-five feet from one side wall to the other and supported in the center by a pillar of hewed pine 16 inches square. All of these heavy timbers, and the pine lintels over the doors, of similar dimensions, were elaborately and finely carved on all exposed surfaces, in relief, with simple but tasty designs. (Fig. 2.) The windows were few in numbers—three on each side—and small; and, of course, without glass. The form and structure of the roof can only be conjectured. The monastery adjoining the large church has fallen in shapeless heaps; its walls, but two feet in thickness, are all wellnigh tumbled down save at the angles, where they yet stand ten or twelve feet in height. It covered a ground area of 13,377 feet, and had many rooms, hallways and an inner court, and one apartment that had no opening but a small door leading into the sacristy of the church.

I was fortunate in securing, from a Mexican vandal who carried it off six years ago, part of the last remaining carved girder of the old ruin. It is of pine; and though placed in the walls two and a half centuries ago, and for more than half of that time exposed to the weather, it is yet quite sound with its sculptured bas reliefs still sharply defined on three of its surfaces. The remains of the small, and older, church present such a confusion of fallen walls and dirt-covered debris as to defy any attempt to trace its form or determine its dimensions with much accuracy. Some portions of its rude stone walls are yet seen in place, serving as tomb stones to mark its burial place.

Abo was a typical Pueblo town, or three-story communal agglomeration of cells for human dwellings, over 200 feet square; now but a quadrangular line of irregular mounds; with a smaller square of the same kind near by. A few rods north of these long forgotten habitations are two walls of stone masonry, forty-two feet apart, one hundred and fifteen long, twelve feet thick at the base, and sixty feet in height, the majestic ruins of another grand Catholic church erected early in the 17th century. At Quarai, the third point of the triangle, are to be seen the ruins of a still larger edifice, erected about the same time by the pious missionary Friars, having a floor area of 5020 feet; but is more dilapidated than either of the others.

The ground around all these ancient Pueblo sites is strewn with broken pottery and countless flint, obsidian and topaz chips, among which are found perfect and fragmentary arrow points, hammers, axes, etc., of stone, and implements and ornaments of shell and bone, the imperishable indices of primitive savage arts. The limitless salt plains of this vast basin are practically without water. Because of this dearth of water the fine grass they produce is rendered

valueless. The cattle men here who are eager to utilize it have expended much labor and money in their search for the lost water supply of the first settlers. About the old ruins are shafts sunk to the depth, in some instances, of 200 to 400 feet for this object, but as dry at the bottom as at the top. Vestiges of old irrigating ditches can be traced from the ruins until lost in the far eastern rim of the basin; but the inhabitants of the Pueblos could not have relied upon this precarious source for their domestic supply. But a short time ago some stragglers prospecting about old Quivira for the mythical treasure of \$30,000,000 in gold, said to be buried there, noticed in their wanderings rude stones planted in the ground at irregular intervals, but apparently in straight lines. One led from the town; another from the valley, and a third from the western hills. Following them to the point of their intersection, not far from the main part of the ancient Pueblo, they set to digging—for the expected treasure—and, at the depth of six feet, found—the unexpected—a spring of pure, fresh water, that ages ago had furnished the liquid to moisten the Quivirian clay internally and externally.*

Volumes might be written to record the folk-lore tales and myths that cluster around La Gran Quivira without exhaustion of the theme. No wonder. "Its bleak, unearthly site, the necromancy of the plains, its ghostly aspect, and its distance from all water, were enough" to invoke the supernatural. By the aid of a Mexican herder I discovered a mile east of the ruins, hidden in the brush on the slope of a hill, a curious cistern-like excavation—perhaps an old reservoir—in the rock, 30 or 40 feet in diameter, of unknown depth, with its external opening, level with the surface, contracted to a square hole eight by ten feet across. It may once have been covered by a building, or other structure, that has long since disappeared. Thirty feet down, below its mouth, is a cone of fallen and broken rock which I penetrated to the depth of ten feet without finding the bottom. There are piles of loose stones, which space will not permit me to describe, so placed that lines drawn from one to the other, forming the figure of the cross, will intersect their course at this spot, seemingly placed there as guides to its locations. Another object of interest is the so called "cemetery" at the foot of the ridge below the town, an area of a hundred feet square enclosed by double walls four feet apart, with irregular openings, which, in my opinion, was but a fortified sheep corral. Much digging has been done for a mile around the town by searchers for absent water and fabled treasure; but very little for exploration in the interest of science. With the latter view I made a slight excavation in one of the house mounds near the church, and was rewarded by the recovery of two human skeletons; one was that of an adult apparently middle aged, the other that of quite a young child. These bodies had been thrust in a hole made under the house wall beneath the plastered floor level, and may have been the concealed victims of a crime—quien sabe?

The widespread belief in the existence of buried treasure at Quivira originated in the lively imagination of some Spanish romancer, who based the story upon the general revolt of the Indians of New Mexico against Spanish rule, in 1680. According to his version—or perversion—of history, all the Spaniards in the territory were killed but three of the Quivira Friars, who by night escaped and succeeded in safely reaching Paso del Norte, 200 miles south, where one of them died from exhaustion consequent upon the exposures and hardships of the journey. The remaining two in time arrived at the City of Mexico, 1200 miles

*"There is neither spring nor stream in thirty miles. But this is hardly a rare thing among Pueblo ruins; and it is well known that aborigines were wont to 'kill' their water when forced to abandon a town, lest it give comfort to the enemy. We know, not only by record, but by eyesight, of several cases where, with infinite labor, the Pueblos actually obliterated a spring to keep it from their savage neighbors."—Lummis.

farther south, and there one more died. The survivor finally reached Madrid, in Spain, where he too gave up the ghost, divulging upon his death bed the momentous secret, now in his sole possession, of marvelous wealth of the Quivira province, and the millions of crude gold that he and his confreres had securely secreted before their flight.

But, stripped of all the shadowy mists of romance and superstition that have almost consecrated the memory of Quivira, there remains much to interest the student of American history. We know that here were the villages of sedentary Indians, dating back to unknown time; we know when the "black robes" came among them with crucifix and firelock to introduce a higher culture and new order of architecture; we know also that the red demons of the west, the Apaches, between the years 1670-75 exterminated the entire settlement of the Salines, leaving nothing but ruins to sink into forgetfulness.

San Marcial, New Mexico.

JOHN W. VIRGIN.

THE HOPEWELL GROUP.

WARREN KING MOOREHEAD.

(Concluded.)

From evidences on the surface in the South or old fort of Fort Ancient, I have always supposed the dwellings of southern Ohio mound-building tribes to have been large—say 20 to 40 feet in diameter. Having referred to them in several publications, it is only necessary to state here that they may have been composed of heavy saplings, conical and clay coated. Of course, families of a certain totem or crest lived together. Our Hopewell people had long been gone when the mound-tribes of the South were seen by La Salle more than two centuries ago. Yet those

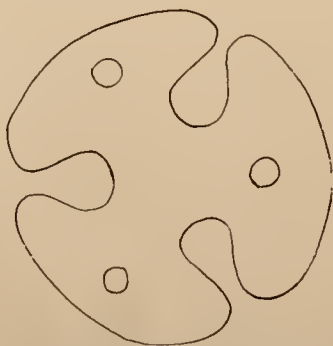


FIG. LXIX—Design in thin copper; $\frac{1}{4}$ size. From the effigy mound, Hopewell.

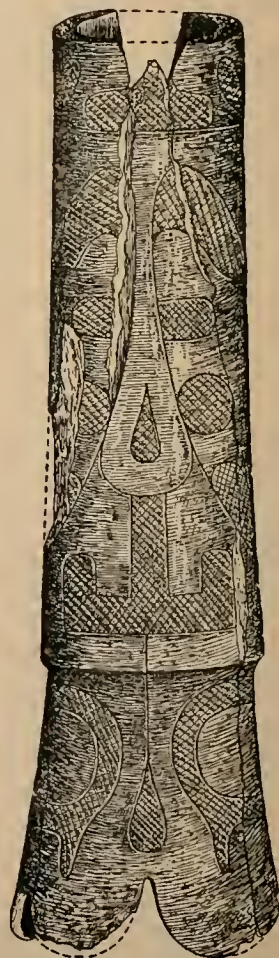


FIG. LXIV--Tracing upon human femur. Effigy mound, Hopewell

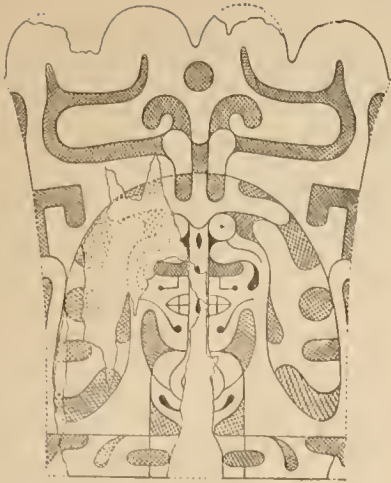


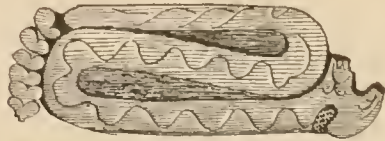
FIG. LXV.—Design of Fig. LXIV.

mound-tribes of the South lived in large structures either of clay in the form of bricks or plaster, or wood which was clay covered. The historian of La Salle's expedition observed a mound-building people in all their simplicity and ignorance of the outside world and its arts. In a number of points this life seen by Historian Tonty resembles that of the Hopewell tribe, and therefore I do not consider it an introduction of irrelevant material to quote his remarks.

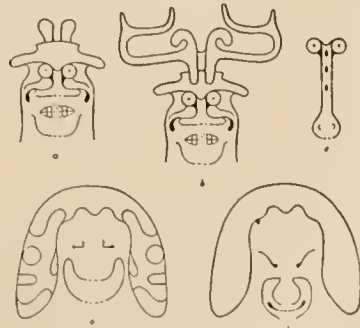
I do not insert his observations because I think the southern tribes seen by Tonty to have been as high in point of culture as those of Hopewell's, neither because I think them to have been of the same antiquity. But Tonty and La Salle saw these people—real living mound-builders—at a time when their arts and life were in every sense primitive; unaffected by European civilization. His observations, accordingly, have considerable value, and no student can fail to overlook or slight them. There is much, by the way, in Spanish, French and early English literature to help us in better understanding prehistoric life.

"He (Tonty) had seen nothing like it in America; large square dwellings, built of sun-baked mud mixed with straw, arched over with a dome shaped roof of canes, and placed in regular order around an open area.* Two of them were larger and bet-

ter than the rest. One was the lodge of the chief; the other was the temple or house of the sun. They entered the former and found a single room, 40 feet square, where, in the dim light, for there was no opening but the door, the chief sat awaiting them on a sort of bedstead, † three of his wives at his side, while sixty old men, wrapped in white cloaks woven of mulberry bark, formed his divan. When he spoke, his wives howled to do him honor; and the assembled councillors listened with a reverence due to a potentate for whom, at his death, a hundred victims were to be sacri-

LXVII—Rattle-snake in stone; mound No. 1; $\frac{1}{2}$ size.
Hopewell Group.

ficed. He received the visitors graciously, and joyfully accepted the gifts which Tonty laid before him. The interview over, the Frenchman repaired to the temple, wherein were kept the bones of the departed chiefs. In construction it was very much like the royal dwelling. Over it were rude wooden figures representing *three eagles* turned towards the east. A strong mud wall surrounded it, planted with stakes, on which were stuck the skulls of enemies sacrificed to the sun; while before the door was a block of wood on which lay a *large*



Designs of Fig. LXIV separated.

*La Salle, and the Discovery of the Great West. Parkman, p. 281.

†Probably a rude seat of poles.

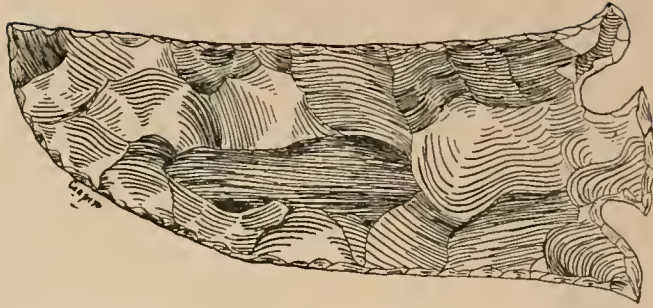


FIG. LXIX—Obsidian curved knife; 2.5 size. Altar, effigy mound, Hopewell Group

shell surrounded with the braided hair of the victims. The interior was rude as a barn, dimly lighted from the doorway and full of smoke. There was a structure in the middle which Membre thought was a kind of *altar*; and before it burned a perpetual fire fed with three logs laid end to end, and watched by two old men devoted to this sacred office. There was a mysterious recess, too, which the strangers were forbidden to explore, but which, as Tonty was told, contained the riches of the nation, consisting of *pearls* from the gulf and trinkets obtained probably through other tribes, from Spaniards and other Europeans.

"The chief condescended to visit La Salle at his camp; a favor which he would by no means have granted had the visitors been Indians. A master of ceremonies and six attendants preceded him to clear the path and prepare the place of meeting. When all was ready he was seen advancing clothed in a white robe, and preceded by two men bearing white fans, while a third displayed a disc of burnished *copper* doubtless to represent the sun, his ancestor, or as others will have it, his elder brother. His aspect was marvelously grave and he and La Salle met with gestures of ceremonious courtesy."

If there were large dwellings of sun-dried brick at Hopewell's or if the lodges were of poles, clay-covered, matters not, for no

trace would remain. The first ploughing (94 years ago) may have revealed circular depressions where large lodges stood, but there is no record. Atwater, 80 years ago, reported that strange things were found on the surface when the enclosed areas of works were first ploughed. If the early writers and traders had told us more about these "strange places" of the earth works; related simply what they saw, our information would be vastly more satisfactory. The wooden eagles over the sun temple may have their counterpart in the Hopewell copper eagles or bird effigies. The large shells at Hopewell's may have been used for similar purposes as those which La Salle saw.



FIG. LXVIII—Stone plummet from altar, effigy mound; full size. Hopewell.

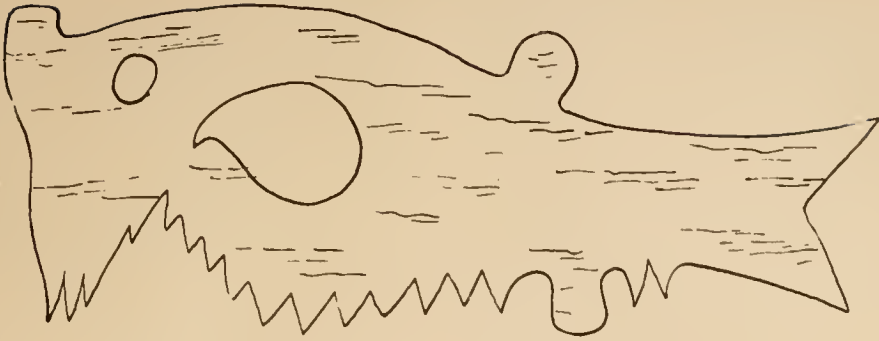


FIG. LXXII—Fish in bone, full size. Effigy mound, Hopewell Group

The ceremonial altar and the pearl beads and other treasures throw much light on the Hopewell beads, store of copper, obsidians, etc. What La Salle thought were preserved on account of being treasures, may have been, in reality, objects prized because of ceremonial or religious significance.

If a burnished copper disc to represent the sun was carried before the chief, may not some of the cosmic and other symbols of the Hopewell Effigy mound have performed similar offices?

Cushing's investigations lead him to conclude that the mound culture of the North (Ohio Valley) originated South. Prof. Holmes is also of this opinion. I believe General Thurston—after years of labor in Tennessee—has arrived at similar conclusions.

Reverting to the designs again, let us go a step farther, and yet not entirely on theoretical evidence either. None of these designs are as complicated or show the intricate detail of the symbolism as depicted upon the monuments of Central America. Yet the primal ideas, the concepts, are the same. Fig. XLI, showing the bear and symbolic eye carved upon a section of deer-horn, is strictly northern so far as the bear is concerned; but Fig. XXIV is *southern*. Putnam says of it:

"This remarkable piece, cut from a sheet of hammered copper is not only a representation of the serpent head, but includes also in the design the symbolic eyes, each with two arms, as in the Cincinnati tablet, and the cosmic symbol with the "four quarters" indicated by the bars issuing from the central sun circle. This cosmic symbol of the sun, four quarters, horizon or boundaries



FIG. LXXIII—Peculiar copper object, full size. Effigy mound, Hopewell Group.

of the earth, and sometimes the water is common in America or elsewhere, and probably formed a prominent part in ceremonials and in pictographic expressions of various peoples."*

An inferior race or tribe—yet possessing some degree of intelligence—coming in contact with a higher culture will gradually absorb some of the arts of its superior not already possessed. This is the teaching of history and the exceptions are few. The use of metal, conveyance of thought by means of written characters, superior government, architecture, etc., once observed, are too valuable to be forgotten. They are learned and retained. If the mound-building tribes of either the North or South came in contact with Mexican or Central American life at any period (say 1200 to 1500 A. D.) when that life was at its zenith, they would most certainly have brought home and imitated many of the arts. While our tribes may find their true place in middle barbarism, yet their intelligence was sufficient to comprehend the higher arts of the Central American peoples and to pattern after them, and as they do not show us that they knew of those arts we must conclude that there was no intercourse between Mexico and Ohio when the civilization there (Mexico) was high. I suggest that while the origin of the Ohio, Florida, Tennessee, Mississippi and Arkansas mound-builders may have been southern, or although they may have known of southern arts, yet it was during a period of antiquity. How great, let others say. But it surely was before any considerable advance had been made among the South or Central American tribes. I will offer other reasons for the suggestion.

First—Because Holmes notes similarities in art-concepts on the Florida and Central American pottery and considers that pottery decoration was imported from the South.*

Second—Because Harshbarger, our authority on maize, thinks it to have first been grown far south and have gradually spread northward. I think we are safe in assuming that he has proved this.

Third—On the evidence of the symbolic eye, the cosmic symbols and the Swastika. Also the spool-shaped ear ornaments.

Fourth—On the evidence of serpent and sun worship, the plumed serpent, etc.

Fifth—On mask or heraldic figures evidence through which the wearer of the mask apparently deifies himself or takes upon himself the spirit or god of the animal he represents.

Sixth—Because of the craniological evidence, nearly all of these people being brachycephalic.

Seventh—Because commerce tends southward, there being more objects of southern material than from the North or West in all the tumuli.

Frankly, I do not desire to assume, but I cannot see how the evidence points otherwise than towards a southern origin for all

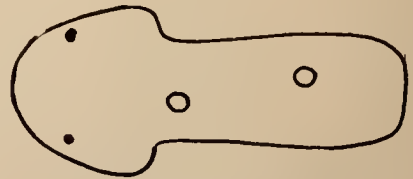


FIG. LXXIV—Unknown ceremonial. Effigy mound, Hopewell Group.

*At a meeting of the American Philosophical Society, Philadelphia, Nov. 6th, '96, Dr. Brinton said: "Our very eminent American archaeologist, Professor Holmes, has made a study of pottery throughout western Florida, in which he has shown that the decorations of that pottery are peculiar in character and have many similarities to what he calls the 'Antillean Culture, or the Culture of the Great Antilles—Cuba and so forth.'"

*Symbolism in Ancient American Art. A. A. A. S. Report for '96.

the village or more cultured tribes of the Mississippi Valley.

There remains but little to be said. Both the long and short head people mingled at Hopewell's, but one would think that the brachycephalic were masters and the original villagers. During excavations we found all the objects were with them—none were placed alongside the other tribe or race.

As to antiquity, we can only speculate, but I am very strongly inclined to the opinion that forest trees covered the Hopewell Group three centuries before Columbus sailed upon his uncertain voyage.

Flint Ridge material was in considerable evidence and several pieces came from the tumuli. Most of the village site arrow, knife and spear-points were made of it. It is singular that our Hopewell people should go to Tennessee or Indiana for the flint discs when better material was to be had at Flint Ridge and not sixty miles distant. This leads us to conclude with Dr. Snyder that the discs were not raw material to be worked up later.

No dog bones or other evidences of domestic animals were to be found.

The village site did not give us as much information on domestic life, division of labor, etc., as has been secured from other explorations. But this is immaterial since those questions had been solved and the more important ones—religion, symbolism, trade, etc., had not.

The great fund of testimony now on exhibition in the Field Columbian Museum at Chicago—so arranged that even he who runs may read—coupled with the results of other explorations, is bringing the life of prehistoric man of Ohio's beautiful valleys out of darkness and into light. Many arts, customs or phases of life attributed by early archaeologists to the mound-building tribes, we find did not exist. Customs, beliefs and arts not imagined did exist. First and above all, their arts and life are peculiarly, distinct-

ively American. This is true of the whole Mississippi Valley, the Southwest and Central America. There is nothing like it (in its entirety) in the world. It has a stamp, an individuality of its own. We may say the sun, serpent, Swastika, etc., exist in worship the world over; but they are not *all* the story—only a part of it. It is to these people whether of Ohio, Florida, Mexico or Yucatan, that we can justly apply the title of real Americans. We are such only by adoption.

The most striking thing of all to me is the continuous evidence of religion, of ceremony and of belief. It seems that the Hopewell folk must have given up their entire time to rites and observances. The multitudinous copper designs, the studied ceremonial burials all point to such a purpose of life. Whether their secret societies were highly developed (as with the Zunis) we know not—we may conjecture that they were. Their wars, means of defense, language, etc., must remain in obscurity.

Finally it may not be amiss for me to conclude that a continued study of the mound-structure and the odd designs will settle some of these open questions. I shall certainly welcome suggestions from any source, shedding further light upon the explorations which have been presented in this "field paper."

We left our quarters in February. After reporting at Cambridge, I went to New York and arranged for the Cliff Dwellers' Expedition. A few days after March first, I took an early morning through train for the west. Before retiring I asked the porter to awaken me at Chillicothe. It was past midnight when the train pulled out along the well known track towards Anderson station. I raised the curtain and peered out. Presently we were alongside the familiar field. A light snow covered the remains of our Effigy—whose ancient dead we had removed even from their last resting place—and made the outlines of that truly great monument barely discernible. A moment later, as the train sped on, the darkness hid it, and the famous Hopewell Group, where we had toiled so long, vanished into the night.

(The end.)



ANOTHER GEORGIA IMAGE.

The sculptured image, of which I send you front and side photographic views, is twenty-one inches in height and weighs fifty-six and a half pounds. The head, through the ears, is six inches wide, and measures six inches from the chin to the top of the forehead. Its width through the shoulders is nine and a half inches. The nose is two inches long; the arms are twelve inches, and the mouth is an inch and a half wide. The eyes are prominent and well defined, and the expression of the features that of calm repose.

It was wrought from a block of steatite, and is very smoothly finished all over. The surface is hard and of dark color, with here and there iron stains, and was, when discovered, encrusted with patina patches (that have since been removed), as is usual with objects of stone that have been long imbedded in the soil. The effigy seems to be that of a female, with well-marked nipples though deficient in mammary glands. Her long hair is confined in a knot at the back of her head, and that part of it not so knotted is kept in place by a net covering, a feature, I am informed, never before observed in any prehistoric stone image found in the United States.

This interesting specimen was found in the neighborhood of the great Etowah mound, where several images, of stone and clay, had been previously unearthed. My business engagements call me to Georgia every year; and on one of these trips, in 1890, it was my good fortune to meet Captain Lyon and wife, the lady being the daughter of the late Colonel Tumlin, upon whose plantation, on the Etowah river, in the near vicinity of Cartersville, are situated those justly

famous mounds, so well described by Colonel C. C. Jones, in his "Antiquities of the Southern Indians," and by Professor Cyrus Thomas, and other archaeologists. During the summer of last year, while enjoying a very pleasant visit at Aylmer, the beautiful home of Captain and Mrs. Lyon, in making inquiries of persons I met in my rambles—as is my custom when down there—for Indian relics, an old man told me of this "Idol," as he called it, in the possession of a neighbor, Mr. J. W. Sikes. The next morning I called on Mr. Sikes and family, who are typical native Georgians, intelligent, but not highly cultured, and examined the idol; and from him learned the following account of its discovery. After an extraordinary freshet in the spring of 1886 that caused the Etowah river and tributaries to overflow all their alluvial bottoms, he, Mr. Sikes, in going across the country on foot had occasion to cross Raccoon creek, a small tributary of the Etowah, at a point where the (then) shallow water was about nine feet below the top of the sandy banks. The great volume of water that had recently rushed down and over this narrow channel had undermined and caved in the banks of the little stream very extensively. Not far from the water's edge his attention was attracted to a smooth stone protruding from the sand, which he concluded to examine. In a few moments he scratched it out and was astonished to find it to be this sculptured figure. He could not determine whether he took it up from its original burial place, or whether it had fallen from a higher point in the disintegration of the bank and had in falling been again partially covered by the water-washed sand. As he did not own this land himself, and concluded that he had found something possibly of great value, he carefully re-covered his treasure-trove, and waiting until cover of night, returned and brought it home. He made a box for it of the remnant of boards left from the lumber used in constructing the box into which the coffin of Colonel Tumlin had been placed at his burial, and had kept it carefully secreted, only showing it to a few intimate friends. After a good deal of negotiating, and by the friendly aid of Captain Lyon, I succeeded in purchasing it at, what I considered, a reasonable price.

Of the many prehistoric stone images discovered in the south I find one closely resembling this one of mine, described by Haywood, the early historian of Tennessee (quoted by General Thruston in his *Antiquities of Tennessee*, page 108), as follows: "The figure, dug up on the McGilliam farm, on Fall creek, in Wilson county, Tenn., is cut out of a hard rock, of what kind Mr. Rucker could not determine. It was designed for a female statue. * * * * It is fifteen inches long and thick in proportion. It has a flat head, broad face, a disproportionately long aquiline nose, low forehead, thick lips, and short neck. The cheek and chin bones are not prominent, but far otherwise. On the back of the head is a large projection, so shaped as to show, perhaps the manner of tying and wearing the hair. The nipples are well represented, though the breasts are not sufficiently elevated for a female of maturity."

In treating of the Etowah group of mounds, Colonel Jones (*Antiquities of the Southern Indians*, p. 140), says: "Within this enclosure three stone idols have been found, and numerous terra-cotta images fashioned after the similitude of man, beast and bird. Of these stone idols it may be remarked, in passing, that two were cut from a dark sandstone, were respectively twelve and fifteen inches in height, and represented the male figure in a sitting posture—the knees drawn up almost upon a level with the chin, the hands resting upon either knee. The third, and the most carefully-sculptured Indian idol the writer has ever seen, was a female figure made of a dark talcose slate (page 433), in a sitting posture. The legs, however, are entirely rudimentary and unformed. Its height is fifteen and three-fourths inches, and its weight thirty-three and a half pounds. Cut out of a soft talcose rock, originally of a grayish hue, it has been in time so much discolored that it now presents a ferruginous appearance."

It is to this class of carved effigies the one in my collection belongs. It seems scarcely probable that they were objects of worship; and we are not, in my opinion, warranted in designating them as "idols" in a sense synonymous with that of pagan deities. Father Petit said: "The Natchez have temples filled with idols. These idols are different figures of men and women, for which they have the deepest veneration." This statement suggests the most rational explanation of the motive of these sculptures, as works of fond parents, or other kinsmen, who intended to perpetuate in stone the statue portraits of their departed loved ones.

Mt. Vernon, Iowa.

A. J. POWERS.

ARCHAEOLOGICAL NOTES.

METAMORPHIC SLATE BEADS.

In the October number of *The Antiquarian* there are figures of ten of the large slate beads that are occasionally found in all parts of Ohio. The prehistoric stone workers of this region used this material almost exclusively for works of art or ornament. It was the precious stone of their artisans. The use made of these beads is pretty clearly indicated by the sculptures found in Mexico and Central America. In Vol. IV, of Bancroft's *Native Races of the Pacific Slope*, on pages 263, 264, 313, 317 and 329, and in Dr. Habel's *Representations of Sculptures found in Guatemala* (No. 26, Smithsonian Contributions, Plates II, III, and IV), are figures very clearly indicating the use made of them in that region.

They evidently were worn as ornaments by civic or religious dignitaries. Their cost would prevent the use of them by "the masses." Their large size would restrict their use to ceremonial occasions. These are the uses indicated by all of the figures referred to above. The abundance of these finds in this part of the country and their common use by the more civilized races of Mexico and Central America are strong proof of intimate ethnical relationship and a common origin of industrial arts.

CUP STONES.

I have in my back yard a cartload of these so-called cup stones, most of which were picked up in Twinsbury, Summit county, Ohio, where there are many old fire-hearths, and they were mostly found near them. The large number of these cups indicates clearly how they were made. They were commenced with a hard, sharp-pointed stone used as a pick. Some of the specimens show only a few pick marks and a slight depression; others are carried to the depth of one-half, three-fourths, or an inch into the stone, leaving a cone-shaped cavity, everywhere showing the marks of the pick. In those of full size the pick marks are all obliterated, and the cavity is nearly the shape of half a sphere. After the cavities reach the depth of from three-fourths of an inch to an inch they seem to have been no longer of any use; for new cups were started near their margins, which have, or would have marred the first ones. They are all on irregularly shaped fragments of coarse sandstone of various sizes, and wholly unworked except by the formation of the cups, which are found in numbers on many of the stones, and often on both sides of them. The good conducting property of the rock forbids the idea that they were used for the production of fire. I have worked a well-arranged fire drill in one of these cups until exhausted and found the cavity not appreciably warmer.

The coarse character of the sandstone on which they are formed does not favor the hypothesis that they were used as spindle rests: for abundance of other material was available better adapted to this use. The fact that they are found in all parts of the north temperate region of Europe and America indicates that

they had their origin in wants or ideas common to all the primitive tribes of that zone. If they had any religious or ceremonial significance, more taste would probably have been exhibited in selecting the material on which to work, and the cavities would not have been abandoned and obliterated when they reached a certain definite size. The suggestion that they were nut-stone cavities formed to facilitate the cracking of nuts has not been greatly favored by archaeologists. But the fact that this theory accords with the first impressions of observers who are looking for no recondite meanings adds much to its plausibility. In many cases first impressions are the best; and wherever these cup stones are found there are somewhere nearby produced edible, hard-shelled nuts which would constitute an important part of the diet of savage people. Boys armed with good modern hammers often suffer from severe contusions of their fingers in cracking these nuts. With a rough fragment of rock, or the best primitive stone hammer, these contusions would be more frequent and more severe. When the nut resting on a smooth surface slips from its place and the boy gets a blow on his fingers he seeks for a depression or a rough place for the nut, that he may crack it more safely. Continued on the same place on a piece of easily abraded sandstone makes the breaking of the nut easier and safer, and the artificial preparation of such a cavity would be readily suggested. A hard rock fragment with a pick-like projection would naturally be used for this purpose. The practical use of the depression thus formed would quickly obliterate the pick marks, and its continued use would in time make it too deep for further use.

Let the name of these cup stones be changed to nut stones, one of the names first suggested, until a theory in better conformity to all the observed facts can be offered.

M. C. READ.

Hudson, Ohio

THE WOODEN PESTLE AND MORTAR.

I have made many photographs and drawings of Onondagas with their wooden pestles and mortars, still much used by them. A large log is neatly sawed off, to the length of less than three feet, and this is burned and chipped out to a convenient depth in the old way. Then it is set up on end as a mortar. The pestle may be four feet or a little more in length, according to the stature or taste of the owner. It is small in the middle, which serves as a handle, either end being used at pleasure. These large ends have a narrowly elliptic outline lengthwise, and the whole pestle is a single piece of hard wood, more or less neatly finished. Two women often pound corn together, but sometimes one does it alone.

The Iroquois used the stone pestle but little, and, in fact, discarded stone whenever they could find a substitute. They were excellent carvers, and their wooden spoons, cradle boards, snow snakes, bowls, bows and arrows are extremely well made. In bone and horn they worked equally well.

Those who use the wooden pestle and mortar now, say that it is a mortar of preference with them, no white man's mill doing work to their satisfaction. That this is not altogether an Indian fancy, may be seen by an extract from the Jesuit Relation of 1833. They had a hand mill in their mission house among the Hurons. "Not a person has come here who has not wished to turn the mill, yet we ourselves have not used it much, inasmuch as we have seen by experience that our saganites are better for having been pounded in the wooden mortars of the savages than ground in the mill. I believe the cause is that the mill makes the meal too fine." In the grinding of spices, etc., some of our own people have come to the same conclusion.

Aside from this subject, I may say that the past year or two has brought to light a large number of bone harpoons in New York, some of Iroquois make, and others earlier. Several barbed, bone fish hooks have also been found. Of those having barbs, I now know of nine, all but two being from New York. Those without barbs are more general in distribution, and, of course, earlier.

Baldwinsville, N. Y.

W. M. BEAUCHAMP.

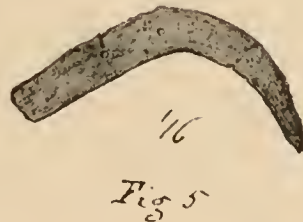
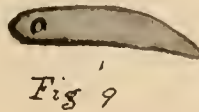
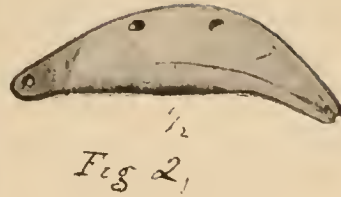
A GROUP OF ILLINOIS MOUNDS.

In the periodical that preceded this magazine, *The Archaeologist*, for March and April, 1895, was published the report of my partial exploration of a group of large mounds situated on the alluvial bottom of the Illinois river, in Brown county, Illinois, thirteen miles below the city of Beardstown. As many readers of this new "*Archaeologist*" may not have seen that report; and for a clearer understanding of the results of my later investigations in the same field, I will briefly summarize the account then given of my observations there. In the accompanying diagram, Fig. 1, the circle A, is a platform mound of clay, 98



Fig. 1

feet in diameter, with level top, originally eight feet high, but now reduced by the plow and rains to half that height. On this western side may still be seen the vestige of a graded way, ascending from the surrounding plain to its top. Fifty yards north of this is the mound, marked 1 in the plat, 180 feet in length, 100 feet wide and 30 feet high; at the base of which, at its center, we found 6199 rudely-chipped discs of glossy, black flint, known as hornstone, resting on a low platform of hard-burned clay, in or upon a bed of ashes containing in-



numerable fragments of charred human bones. The flints, averaging six inches in diameter and an inch in thickness, were covered with a stratum of clay a foot in thickness, upon which another fire had been maintained for some time, incinerating a few more human bodies, or skeletons, together with many large marine shells, sheets of mica, stone implements and various ornaments of bone, shell and stone, that no doubt had been cast into the flames as votive offerings, and were more or less destroyed by the fierce heat. All this had been enclosed in a cribwork of large logs and rough rocks brought from the hills near by, and in time covered by the immense heap of bluff clay without admixture of other materials. The only objects of copper discovered in this mound were a thin, plume-like head-piece, Fig. 5, and a pair of spool-shaped ear rings, Fig. 3, that evidently had embellished the same head. The only pottery associated with the fire-scarred deposits, and, indeed, all that was seen in the entire mound, from a foot or two below its outer surface, was a small vase, Fig. 7, and a few sherds of similar composition. This vessel, of a little over a pint capacity, is made of red clay, not of this locality, and coarse gravel or crushed rock, thick and uneven, and was rudely molded in the hands of the potter.

Mound No. 2 is contiguous to the first, of the same oblong form, but not quite so large. It was concluded to commence its examination by cutting down the western end with plow and scrapers; but this was abandoned after having reduced the altitude of that portion a little less than two feet. In the progress of this work a decayed skeleton was unearthed at C, eighteen inches

below the surface. With it were a few shell beads and a fine copper axe, of the flat, hammer-marked variety, nine inches in length, four inches wide at the edge, and weighing three pounds. A cross trench was then commenced, and finally a large pit was sunk down to the base, where, some distance from the center of the structure, was found, in a bed of yellow sand, the surprising number of 5300 neatly-finished, leaf-shaped implements, of the uniform type represented by Fig. 4, ranging in size from two to seven inches in length, by from one and a half to three inches in width, and chipped from black flint almost identical with that found in the form of discs in the first mound. No signs of fire were discovered about this deposit. Like that of the first mound, it was enclosed in a crib of ponderous logs, and resting on the clay-covered flints were several human skeletons with bone and stone implements, mica plates, marine shells and other relics of personal adornment. Among these remains was a small copper axe, lying on the lower jaw of a beaver; and nearby, among decayed bones of a middle-aged individual, was recovered a large platform pipe made of white marble, Fig. 10.

The composition of this mound was totally different from that of the first. No. 1 was a compact mass of drift clay (Loess) with nothing to distinguish it from a natural outlier of the bluffs; but No. 2, above and around the clay covering of the primal deposits, at its base, was built up of varied ingredients in separate quantities, that could be conveniently carried at once in baskets or deer skins, and dumped together; sand, black muck, clay and gravel, in mottled confusion; and interspersed all through with beds of ashes and charcoal, burnt

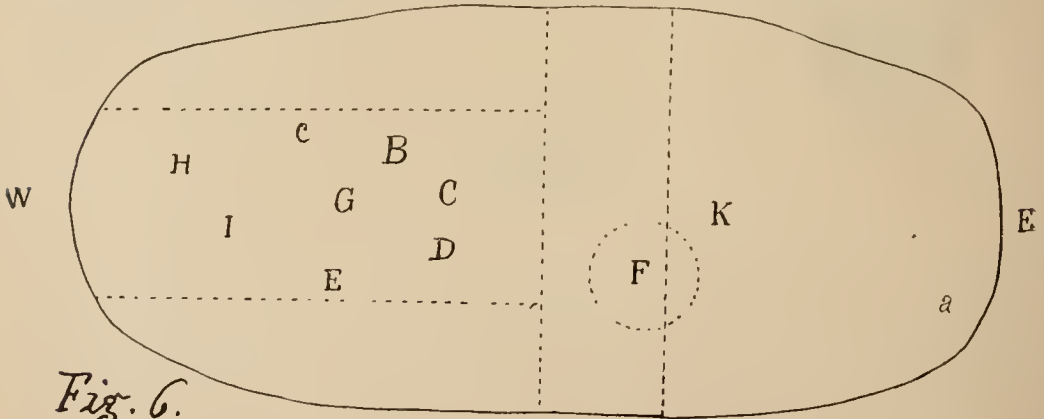


Fig. 6.

stones, mussel shells and bones of birds, fishes, turtles and several species of wild animals, the familiar debris of camp fires; plainly indicating that some of the builders, as was the case with shell-heap makers, dwelt upon the mound while increasing its dimensions.

Work was resumed on mound No. 1 in September last by cutting a trench twenty feet wide from the center to the western extremity, as shown in diagram, Fig. 6. Previous to this, intrusive burials of single bodies had been exhumed, from a foot beneath the surface, at K, and A on the eastern end. Twenty inches below the original upper surface—at B, was brought to light a few crumbling bones and a beautiful copper axe with curved edge, Fig. 8, five inches long and three wide at the broadest place, weighing 40 ounces. Six feet southeast of this point, at C, was found the little headless image, Fig. 11, shown in front and rear view, of actual size, resting on a sheet of mica badly broken, with several flint chips; and nearby, where a skeleton's head had been.

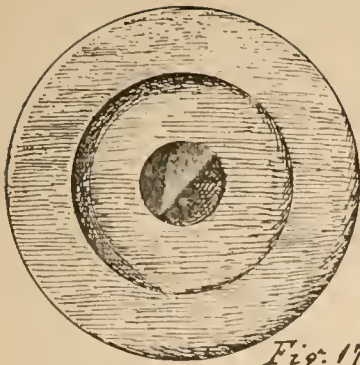


Fig. 17



Fig. 12



Fig. 13



Fig. 16

Fig. 16



Fig. 15

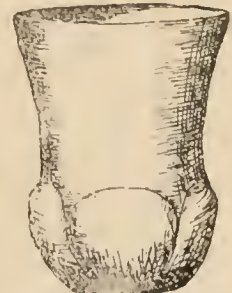
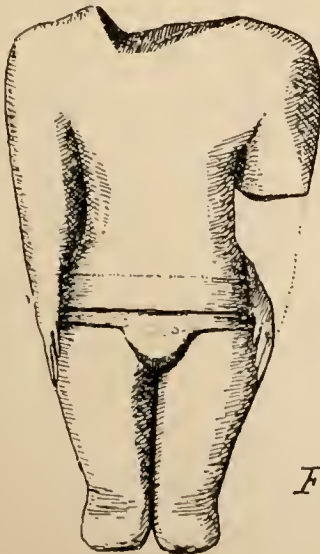
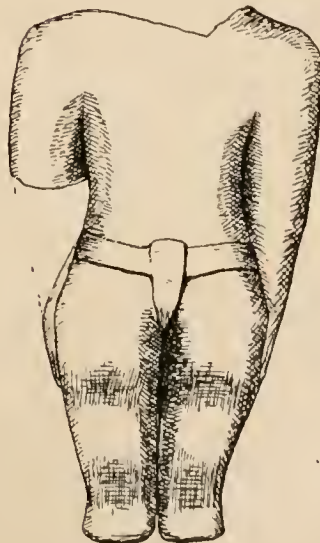


Fig. 20



Front.

Fig. 11



Rear.

were two ear rings of bone, once polished, and yet in a fair state of preservation, Fig. 12, full size. These exquisite ornaments were made from cross-sections of the long bones of some large animal, cut from the solid, articular ends. Fifteen feet west of B was the artistic vase, Fig. 14, very symmetrical in form, made of dark clay, thin and hard, and neatly decorated with indentations around the neck, and thumb nail impressions lower down. Nearby, at H, was another skeleton in the last stages of decay, holding in the right hand (apparently) the small, polished and partially drilled stone, Fig. 15. Over the breast were several flat, ovoid beads, made of shell, Fig. 16, full size, perforated through the long diameter for fastening to the sash or garment, and each having on one side two holes drilled an eighth of an inch deep to receive brilliant stone or jewel settings. (Among the propitiatory sacrifices offered up, on the pyre over the mass of flint discs, in this mound I rescued, in fair condition, a few, of many, large teeth of the grizzly bear that had formed the necklace, or adorned the girdle, of some swarthy brave. Each one was perforated at the maxillary end for the purpose of suspension, and on one side two shallow holes were drilled, as are the beads just described, in one of which, Fig. 2, a small ruby was still intact.) On each side of this ancient native's head was an ear ring, Fig. 17, actual size, of fine-grained, polished wood, black and solid as ebony, and wonderfully well-preserved.

In close proximity to this burial were lying nearby the half of each of two different earthen vases, six inches in diameter, of fine, dark material, and elegant forms. And only a few feet in another direction, and a little higher up at I, I was much surprised to discover another small vase of red clay, nearly entire, and almost identical in size, texture, material and coarseness with the one found some time before near the base of this mound, Fig. 7. Mr. Clarence B. Moore found pottery of this description in some of the sand mounds of Florida, and similar vases from Alabama have come under my notice. Associated here with fictile ware of much lighter type, suggests its importation and precludes any theory of evolution of the ceramic art at this locality.

At G, unconnected with any other object, the ornament of sheet copper, Fig. 13, full size, was turned up. It is very smooth and as accurately corrugated as though pressed by machinery. It seems to have been with those old savages a favorite form of decoration, as several of the same type have been found in Ohio, Florida, Georgia and other states.

At D the spade turned out another fine copper axe of the gouge style, the exact counterpart of Fig. 8, so nearly resembling it that the two can scarcely be distinguished from each other, and look as though they may have been cast in the same mold. On the flat side of this one was the canine tooth of a wolf, probably buried in the same bark or skin envelope with it.

So far in our exploration of this portion of the mound, all the remains mentioned occupied positions on the same general horizon, twenty inches, more or less, beneath the original upper surface. Continuing the excavation sixteen inches deeper we encountered, at E, another surprise. As though carefully wrapped together when buried, in a woven fabric of vegetable fiber, that left its impress on the oxidized metal, were a copper axe, of the thin, hammer-marked kind, Fig. 18, six inches long by three wide, and weighing one and a half pounds; the terra cotta image, Fig. 19, drawn full size, and the small vase, Fig. 20, also of actual size. The tiny vase—of about an ounce capacity—is a curious anomaly, having but few, if any, counterparts in the whole range of prehistoric pottery of the Mississippi Valley. It is of the same color and material as the little images, perfectly proportioned, hard-burned and polished. Its convoluted base is the quarter of an inch thick, gradually thinning to an edge at the rim.

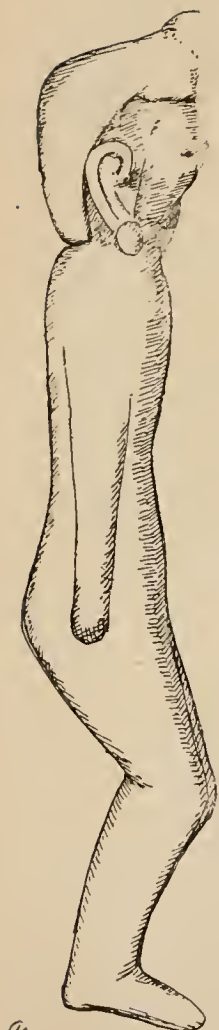
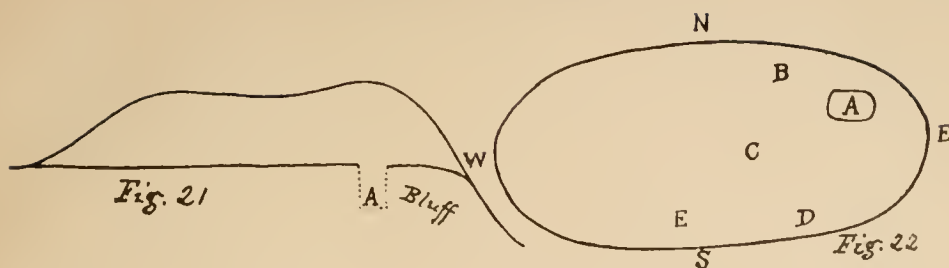


Fig. 19



The terra cotta images are as foreign to this region as is the diminutive vase. Col. C. C. Jones (*Antiquities of the Southern Indians*, pp. 430-31), says in treating of this class of art remains in the South: "Next in order of durability are small images formed of burnt clay and modeled after the similitude of birds and animals and of man. These occur in various parts of the State, and vary in height from three to seven inches. Those which represent the human figures are little more than rude, terra-cotta dolls, clumsily fashioned." This description accords well with the specimens he figures and with those in his collection. The two found here, though not anatomically accurate, are far superior, both in conception and execution, to those Colonel Jones describes, and, as art creations, will rank well with the best prehistoric sculptures occurring north of Mexico. They are hard-burned and smoothly finished. Both are nude; the smaller one wearing a small, pointed apron, held in place by a belt around the loins; the other having only an elaborate head covering, bearing some resemblance to the Roman helmet, and pulley-shaped ear rings in its disproportioned ears. The appearance of the fractures indicate that they were purposely mutilated before burial.

Scarcely a mile north of this lowland group of mounds, on one of the highest points of the bluffs that bound the immediate valley of the Illinois river on the west, is another majestic, earthen monument of the same class, and beyond doubt of the same age and erected by the same people. The view obtained from its summit is truly magnificent. The winding river far below, here and there hidden by dense forests, is seen for miles in either direction; its broad expanse of wooded bottoms diversified on either hand by small, sunny prairies and miniature lakes, with a grand background of picturesque bluffs in the distant east, presents a landscape of rare beauty.

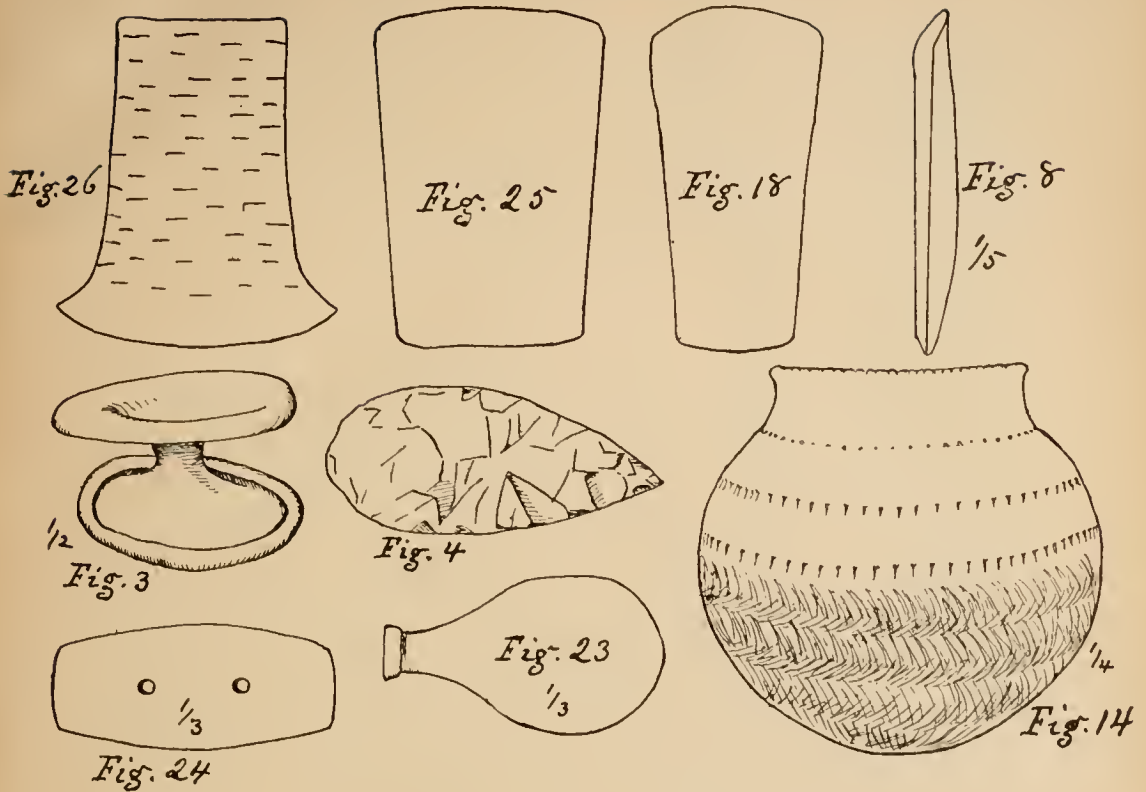
There was surely a tinge of refined sentiment in the savage that responded to the esthetic and sublime in Nature, and moved him to seek such charming spots as this for the last resting places of his cherished dead.

This mound, on the very crest of the bluff, is 125 feet in length and 80 feet in width, and 15 feet high at either end with a slight saddle-like depression in the middle, shown in Fig. 21. Its composition is unmixed clay identical with that of the bluff upon which it rests. Its exploration was commenced last fall and prosecuted for some time with discouraging results. The plow and scraper were put into operation to excavate a cross section near its middle, but soon discontinued as impracticable because of the steep grade on the southern side. The plan then adopted as more feasible was to remove the entire eastern end; and this has not yet been accomplished. At D, on the surface projection of the mound, Fig. 22, a very chalky, intrusive skeleton was reposing, scarcely a foot beneath the sod. The skull of this individual was remarkably thick, with very receding forehead and an abnormal vertical depression in the mid-line of the occiput, three-eighths of an inch deep. Two feet below the surface, at E, were laid, with some degree of order, a cart load of rough stones in a pile nearly four feet in diameter. Carefully removing them, they were found to cover noth-

ing artificial but five small beads, each the quarter of an inch in diameter; three were made of copper, one of bone and one of pearl; the latter considerably decayed, but still preserving its natural luster. At the depth of two and a half feet, at C, lying close together, were disclosed three plummet-shaped pendants, almost exactly alike, wrought from a marble-like, compact, silicious stone, dark-colored and finely polished. Their form is well represented in Fig. 23, drawn one-third of their actual size. At about the same depth, at B, the plow struck another mass of rough stones that covered the partly-cremated remains of a human skeleton. A quantity of ashes and charcoal, the fire-stained earth and burnt bones, were proof that when the mound had attained half its present height at this point a shallow pit was sunk in it, and in that the fire was kindled, and the body, or dry skeleton, consumed by its heat and then covered over with a few inches of clay, on which the rocks were heaped. The only relic that, with a small portion of the skeleton, escaped destruction by this fire, was that shown by Fig. 24, known by the absurd and meaningless name of "banner-stone"—when made of stone. This one, however, was cut out of the thick part of some large marine shell, and is a little over three inches in length, an inch wide and almost as much in thickness, and highly polished.

No additional burials or deposits were met in the great mass of earth removed from that point down to the bottom, where the spades exposed the original surface of the bluff to the fresh air and sunlight for the first time in centuries past. Only half a dozen fragments of (recent) pottery were seen in all this work—and they occurred near the top surface of the mound—and several single valves of the Unio, that had served as clay scrapers, and a few broken flints. The absence of pottery here, however, must not be accepted as conclusive that the builders of this mound were ignorant of the art of manufacturing it. They may have used earthenware at their camps about the fine springs at the foot of the bluffs and dispensed with it in their labors at the summit.

The bluff top having been denuded of its mound covering for a space, it was noticed that, at A, in an elliptical area of eight by seven feet, the ground was soft and yielding, as though it had, at some former time, been disturbed. This supposition was soon verified on digging into it. The looser dirt, though identical with the balance, contained streaks of darker earth, occasional flint chips, numerous shells, and at the depth of five feet, the broken horn of a deer was thrown out. As the spading progressed the walls of this well, or pit, became fully defined, firm and solid and still retaining in places the marks or cuts made by flint or copper tools used in its first excavation. The pit, A, Fig. 21, was found to be very nearly twelve feet deep, eight feet across in its long diameter, east and west, and seven feet wide. Down ten and a half feet the spades grated against a layer of rough stones, that had been carried up from the carboniferous outcrops in the lower ravines, similar to those seen before at B and E. Each rock was carefully removed and the loose dirt all cleaned out, disclosing the totally decayed skeletons of eight persons, so crushed and shattered by the superincumbent stone and earth covering as to be scarcely recognizable, rendering it impossible to make out the relative positions they occupied when placed there. There were no ashes or fire stains, but instead, a coating of black loam on the floor of the pit, the residuum from decomposition of the bed prepared for the dead, presumably of bark, skins, and perhaps fine furs. With only one of the entombed bodies had been interred worldly possessions of a kind that survived the lapse of ages. We are at liberty to imagine that this one was a distinguished personage, and the other seven, his wives or slaves, slain at his death to attend him in the other world. Let that be as it may; if in his day the finances were based upon a single copper standard, he was reasonably well fixed. Near his head was a nodular nugget of pure, native copper—unwrought raw material—weighing 24



pounds; and along his sides were ranged ten copper axes. Around his neck were three necklaces; one of oblong, large beads, made from the columella of marine shells, perforated longitudinally; another, of over 200 incisor teeth of the squirrel bored at the root, shown, with one of the beads, in Fig. 9, and the third was composed of 283 globular, copper beads, solid, and smooth as if moulded and then polished. The largest ones, in the middle of the necklace, are half an inch in diameter, and they gradually decrease in size at the ends to the quarter of an inch. The cord that suspended them, a two-strand, twisted twine, apparently of hemp, was still in place, but crumbled at the touch. Across his breast, and following each other an inch apart, were five plates cut out of fluor spar, each six inches in length, two and half inches wide, square-cornered, and the fourth of an inch in thickness, as smooth as glass, and in the sunlight as resplendent as burnished silver. Each was perforated with two holes, one two inches from either end, for attachment to the dress. The copper axes are of three types, three of them of the thin, hammer-marked sort, Fig. 18, three inches wide and seven, nine and ten inches long respectively. Three are of the celt shape, Fig. 25, compact, very smooth and sharp-edged; and three, four and four and a quarter inches long. The other four are flaring at the edge, Fig. 26, heavy, with even, well-finished surfaces, weighing from two to four pounds each, and are ornamented by cuts a line in depth and an inch to an inch and a half in length, on both sides, at irregular intervals of half an inch or more, seemingly made with a cold chisel or other edged tool.

J. F. SNYDER.

Virginia, Illinois.

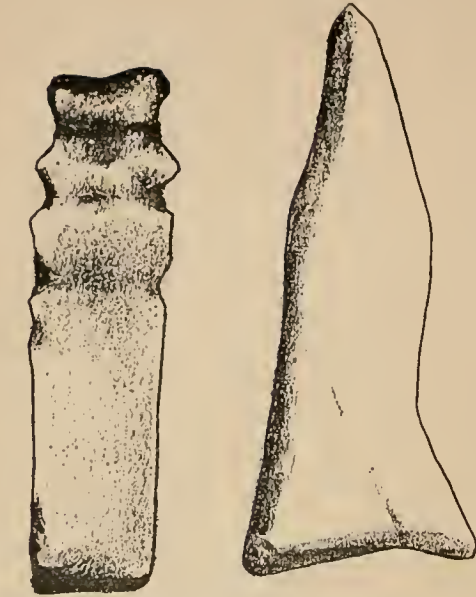
CORRESPONDENCE.

Crawfordsville, Ind., Dec. 24, 1897.

Editor of The American Archaeologist:

It was recently my good fortune to acquire two collections containing, among other things, two interesting objects, a photograph of which is herewith enclosed. Never having seen anything of the kind before, I considered them worthy of mention at this time and place. Their history is in brief the following:

The narrow-grooved object to the left was found by a boy—Austin Kepley by name, and resident in Morton, Putnam county, this state—in a depression caused by the roots of a fallen tree. A local real estate dealer, at one time an ardent collector, acquired the specimen from the boy for the sum of twenty-five cents, but finally traded it with another collector, editor of a local paper, for a couple of axes. From the last-named party the article came into



the writer's possession. The second specimen above shown was plowed up by John Grimes, resident in Russelville, Putnam county. It was cast aside as being of no particular value, together with other rocks, at the side of the field. There it remained until by mere accident the real estate dealer aforesaid heard of the incident. He secured the object for the asking, while the writer acquired it in turn for cash.

The specimen first mentioned, which I shall, for want of a better term, designate a "spade," is fifteen inches long, has an average width of four inches and a maximum thickness of one inch at the grooved end, from which it gradually tapers to one-half inch at the other end, finally terminating in a finely wrought cutting edge. It will be seen from the figure that the upper half carries three grooves, very prominent at the sides, but consisting of slight depressions only across the faces. The top is hollowed or depressed. The sides are beautifully rounded and the entire surface highly polished. The material is ferruginous slate, having a hardness of five on a scale of ten. The specimen is dark olive in color. For what purpose were the grooves and depressions at top? As they show no appreciable signs of wear, it would seem hardly probable that they ever served to fasten the object to a handle; on the contrary, I am inclined to think that if in fact it represents one form of a spade it must have been used as such without the aid of a handle, that is with the hands alone. The form and size render it admirably suited to such use.

The second specimen measures seventeen inches in length, has a maximum thickness of two inches, being somewhat thicker along the central portion than at the sides. The edges are well rounded and the entire surface nicely polished. The smaller end merges into a rather blunt point. It is grayish white in color and consists of a silicious limestone. The lower or widest portion has at some time been broken and the broken part cemented on again with some dark material (was so when found), a microscopical examination of a trace of which revealing the presence of blood corpuscles, thus proving that blood had formed a part at least of the cement used in mending the fracture.

Of the two objects herein described the second would appear to be the more difficult one to ascribe. Was it an implement or a ceremonial (totem)? Or shall we believe it to be the result on the part of the maker of an attempt to represent a fish, but where are the eyes? Could it have been that the wild imagination of the aborigine led him to evolve something like the butt of a gun? Be this as it may, the workmanship of both objects is such as to indicate no mean ability in the artisans themselves.

The writer would be glad to learn the views of any reader relative to the probable use of either or both of the specimens herein described, and especially to learn whether similar objects have ever been found.

Yours truly,
W. O. EMERY.

Editor of American Archaeologist:

The curious speculations of Mr. C. A. Dilg, on page 306, of *The Antiquarian*, induce me to report the presence in California of the arrow-type supposed to be peculiar to Chiriqui. A few years ago I acquired a couple of those South American flints, and shortly after I found, in Lake county, in this state, an arrow-head almost the exact counterpart in type, workmanship and material of one of the Chiriqui specimens. So confusing was the similarity that, having loaned my collection, on its return after two years, I could not tell "which was which" until I had fitted the one from Chiriqui to the outline sent me by the original owner. Since then I have found, in Napa county, two others of this type, but more smoothly wrought. This type of arrow-point is now reported from Ohio, Indiana, Maryland, New York, Mississippi and California. What bearing, if any, does this have on the suggestion of Mr. Dilg?

H. C. MEREDITH.

Stockton, Cal.

To the Editor:

In all my experience I never hunted the surface while riding a wheel until the other day. Portions of the desert hereabouts are almost barren of bushes and one can conveniently ride over such places. Yesterday I looked for specimens and evidences of occupation some miles east of Phoenix. It was not necessary to dismount, save to pick up objects. While they were not very numerous, yet I secured a number, for I could cover more ground and with greater ease than on foot. WARREN K. MOOREHEAD.

Phoenix, Ariz., Dec. 10.

Editor Archaeologist:

In the November number Mr. F. C. Porter confesses some of his sins. Amen! It is justice to the California Indian and, I trust, a relief to his conscience, to acknowledge that the term "Digger" with which he played so fast and loose is a "misnomer."

Now, let Mr. Porter "go on with the good work" by confessing his lack of information in the statement: "I don't think there are any esculent roots and bulbs indigenous to California."—Page 307, *Antiquarian*.

The writer happened to live for some years in Mendocino county—a region having many Indians. At certain seasons of the year these Indians were seen digging quantities of small bulbs and tubers. But the opportunity to identify these roots was neglected. Seeing Mr. P.'s statement, and wishing to correct the error, I addressed Dr. J. W. Hudson, of Ukiah, asking the botanical names of the bulbs used as food by the Indians there. Dr. Hudson is a close student of Indian life, and at present engaged in compiling an Anglo-Pomo dictionary for the Smithsonian Institution. In a few days I received the following note:

Ukiah, Cal., December 2, 1897.

Rev. H. C. Meredith, Stockton, Cal.:

My Dear Mr. Meredith—Your inquiry to hand, and in reply state that our Indians (Pomos) eat at least thirteen kinds of "esculent bulbs," among them the native onion (*Allium C.*), the wild potato (*Convolvulus P.*) and others, some of which I must send to S. F. to be identified. * * * Your deponent is "away off" from well-known facts. Of course you saw our Indians eating roots and native tubers. The wild potato is mealy, farinaceous and wholesome; the onion differs so little from the cultivated variety that one could scarcely detect the difference. My kindest to you and yours.

J. W. HUDSON.

Let Mr. Porter try again.
Stockton, Cal.

H. C. MEREDITH.

[All of which proves conclusively that the appellation, "Root Diggers," applied to those Indians, is not a misnomer, and certainly not "opprobrious."—Editor.]

Editor of The Archaeologist:

In the December number of the *Antiquarian*, page 333, is a clipping from the *St. Louis Globe Democrat*, giving a most interesting account of how a certain person in Illinois recently uncovered a grave in which was an aboriginal skeleton (of course of a giant—all newspaper aboriginal skeletons are of giants), and an earthenware vessel containing some Spanish coins, one bearing date 1428, and others prior to 1450. It seems a pity to spoil a good story, but Spanish coins were not dated at that period.

Philadelphia, Pa.

CLARENCE B. MOORE.

Editor of American Archaeologist:

Reading in the December issue of *The Antiquarian* articles on the Digger Indians recalled to my mind many interesting reminiscences related to me years ago by Edward E. Chever, concerning Indians of Central California. Mr. Chever went to California in the early forties.

During the first years of the gold excitement he furnished game and fish to the miners, living with the Indians and employing them for that purpose. He lived with them about four years.

They had never been in contact with the white man when he went among them. They had no metal, using stone, bone and wood in their implements.

I was greatly interested in his description of their planting and harvesting; their storehouses and granaries; the making of their weapons, camp utensils and baskets, and the description of their baskets from their coarsest to their very best water baskets; their government, society, ceremonies, etc. He could speak their language freely.

Have not heard from Mr. Chever for a long time, but if alive a letter addressed to Edw. E. Chever, No. 5 Pioneer Place, San Francisco, Cal., would reach him.

Yours truly,

CHAS. A. GEER.

Millbury, Mass., January 1, 1898.

CUPPED OR PITTED STONES.

In the *Antiquarian* for October, I wrote briefly upon the entitled relics of aboriginal man, and the editor of that publication followed with a short commentary upon the present "status of the problem."

At the risk of being a little tiresome, I would like to make a few more remarks upon the subject. At the time of my former writing, the greater part of my collection was packed away and inaccessible, and it was thus that one of my most interesting pitted stones was overlooked.

In the editorial comment above referred to, the following remark was made: "Some of the smaller ones with deep, narrow indentations were, perhaps, pivot supporters of rotating fire sticks or boring drills." This view of my commentator is without doubt correct, for the "missing link"—or stone in this case—which I overlooked, speaks very emphatically, as regards such use; for stones do sometimes "cry out," and it only needs an ear tuned to nature to make plain their language. The stone referred to is an ordinary brown sandstone pebble, common to this drift region; it measures two and one-sixteenth, by one and one-half, by one and five-eighths inches. There is a groove cut two-thirds of the way around the stone, leaving a nearly flat surface uncut; the groove is one-quarter of an inch deep, by five-eighths wide and is V-shaped. In one end of the stone is a pit, one-quarter of an inch deep and three-quarters of an inch in diameter; this pit plainly shows the marks of boring, which a blunt-pointed stick or bone would make, on being rotated; the width of the pit at the bottom is fully one-eighth of an inch, and would easily carry a shaft three-eighths of an inch in diameter.

There are no signs of battering on the stone, although a piece is broken from the end, opposite the pit, but this is likely to be the result of a blow from a plow, as the stone was a surface find in a long cultivated field.

The fact that the groove goes but part way around, and that the uncut portion is flat, seems to prove that the stone was lashed against something. The groove being V-shaped and relatively very deep, seems to prove that it was intended to be firmly held by its lashings, and the V-shape might further suggest that it was bound by small cords fitting well into the groove.

It is thus seen that the stone, firmly lashed to an upright stick or post, would make an ideal "pivot" for a rotating fire stick or more likely "boring drill." Where accuracy in drilling was called for, these lashed "pivots" would surely be necessary, and they certainly would be better adapted to the drilling of the finer class of banner or butterfly stones, than the unlashd pivot stones, which I take the ungrooved, deep-pitted stones to be.

GEORGE H. FOUNTAIN.

EDITOR'S DEPARTMENT.

The first year of a new periodical magazine, in a field already well supplied, is necessarily an experiment fraught with grave uncertainties, and generally attended by discouraging trials and tribulations. Unavoidable imperfections and incongruities that experience alone can remedy, retard its way to recognition and popular favor, and render the achievement of success more arduous and doubtful.

In passing through this novitiate stage last year we encountered many of the obstacles and perplexities common to most of the new ventures such as ours; but were more fortunate than some in surmounting them. Contending with many disadvantages and adverse interests we succeeded in placing *The Antiquarian* on a solid basis and in a position among contemporaneous periodicals that attracted attention and commanded respect.

Having, notwithstanding our inexperience and limited opportunities, accomplished this much in the year just passed, we are now better equipped at all points, commencing the new year with the most gratifying prospects.

The new and more scholarly title of the magazine; its assured publication promptly on, or about the same date in each month; the systematic rearrangement of its reading matter; the accession of additional contributors and another able and well-versed associate editor, and the renewed zeal of its managers and publishers stimulated by increasing patronage and flattering commendations, are a guaranty of its improving efficiency, its stability and growing popularity.

It has become recognized by archaeologists everywhere as a convenient and reliable medium for the publication of observed facts and the dissemination of their opinions; and some of the most distinguished of them are contributors to its pages. The literature we offer the public is of more than average excellence, free from abstruse technicalities, and meets the requirements of students and scientists as well as general readers.

We will in the future, as in the past, keep pace with the advance of science in everything that treats of the natural history of aboriginal man on this continent especially, and incidentally of the domain of humanity throughout the world. Expending our best efforts in consummating this object, without thought of pecuniary gain, but solely with the view of promoting investigation and widening the area of human knowledge, we feel justified in asking those who generously stood by us in our experimental labors to continue their good-will and patronage; and all others interested in our aims to render us material assistance by at once subscribing for *THE AMERICAN ARCHÆOLOGIST*.

Wonderful and startling are the discoveries made in underground Egypt. M. De Morgan, for many years Director-General of Antiquities belonging to the Egyptian government, has unearthed prehistoric objects in that country from which he is convinced that the civilization of the ancient Pharaohs came from China into Egypt by way of Assyria. This would be a conclusion that the Chinese were the first civilized people, and not the Assyrians and Egyptians, as is supposed by other writers.

He endeavors, in his great work just issued in Paris entitled "*Researches into the Origin of Egypt—The Age of Stone and Metal*," to prove that about 8000 or 10,000 years ago there took place from the West a great invasion. That the warriors coming with this powerful army were armed with bronze swords and knives, who subjugated the original inhabitants, who were of a negroid type, and reduced them to slavery.

He tells his readers that he can prove that this very interesting and wonderful part of the globe was first settled about 15,000 years ago. De Morgan is an indefatigable explorer and he proposes in the next few years to unfold truths that will startle the world of science. If this great explorer's theories prove true, and he stands ready to answer his critics, then must we indeed search somewhere in the confines of the present China for the much-sought-for Garden of Eden.

A. F. B.

NOTES.

Dr. Wm. H. H. King, an eminent physician and surgeon of Jacksonville, Ills., recently died possessed of a large estate in which is one of the finest and most valuable private museums in our country. He was not a naturalist, but invested money lavishly in natural history specimens merely to gratify a refined taste. In his tour around the world a few years ago he made many accessions to his collection. It comprises a great array of rare, brilliant humming birds, birds of Paradise, and other foreign birds of gorgeous plumage and many splendid mammals; an almost entire skeleton of the fossil Irish elk; a very extensive archaeological collection; thousands of Alaskan and Mexican prehistoric implements and carvings, etc., etc. If Mrs. King should offer it for sale it is to be hoped that some opulent institution of the West will secure it and not permit it to leave our country.

Laborers engaged in grading on Sutter street, between Rose and Vine, Stockton, Cal., found an Indian burying ground there, a number of skeletons being dug up.

Almeda, Penna.—While digging a trench on Eagle avenue, between Willow and Chestnut street, in December, for the purpose of laying gas pipes, a plumber found skeletons of three men lying closely together. They were of men of unusual stature, and had been buried a long time, as the bones crumbled badly on being touched. The spot where the bones were found was formerly covered by an Indian mound, and they were undoubtedly the remains of aborigines who once made this peninsula their home.

The Green brothers recently found a mortar of solid rock in the sand near the San Joaquin river bank on the Cauty ranch. The rock was inverted and had probably been passed many times without attracting attention until found recently. On the Vivian ranch, about six miles distant, a pestle was found which had been made out of hard flint rock. The mortar was made of a softer rock, but was also of a hard and lasting stony formation. Both of the implements show that they had been used. It is hard to estimate how long they had been made or how long they had been abandoned before being found. It may have been hundreds of years. When Indians lived in this section such implements were very generally used for grinding acorns and nuts to be made into food which was stored for winter use.

Five more Indian skeletons were recently taken from the mounds on the Kelly farm, near Sag bridge, and if the ghosts of the region need new excuse for activity they have it ready at hand. The skeletons were dug from a mound never before disturbed, and they were exhumed under the direction of Professor Burke of the Field Columbian museum, who was sent to Sag bridge by Professor Dorsey to investigate. The condition of the bones showed that the occupants of the mound were interred many years before the mounds previously opened were constructed. Professor Burke was of the firm opinion that the skeletons had been in the gravel for over two hundred years, perhaps for a century longer. In spite of the best endeavors of the diggers the skeletons were not taken out intact. Through age the bones had been brought to the flakiness of ashes and many of them crumbled away the moment the encasing earth was removed.

The skulls and thigh bones, however, were all well preserved and through them the number of the skeletons was proved. Professor Burke began the labor of opening the mound at once. For his assistants he secured two farmers living nearby. The mound is at the summit of a hill, and the cold would have made digging impossible had not a shelter tent been hoisted over the spot. The hole in the mound was made at the side and not from the top and the dirt was removed with the utmost care. By night the excavation had progressed far enough to show evidences that bones were deeper in. Several arrow heads were discovered, as were also some fragments of bone. In the morning the dirt was removed from the top of the mound until the layer was reached which was expected to contain the skeletons, if skeletons were there. The earth gave up its secret early in the afternoon, though it was not until dusk that the bones were all taken out of the hole. Professor Burke stayed at the Sag several days longer and dug into every hillock that gave promise of being an Indian burial mound. He said last night that the discoveries thus far were of great scientific importance.

THE AMERICAN ARCHAEOLOGIST.

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THE CULTURE STATUS OF THE AMERICAN INDIAN AT THE PERIOD OF HIS DISCOVERY.

DANIEL G. BRINTON, M. D.

There is no "law of evolution" for a race. It is formed, flourishes and fades, and its place knows it no more. There is none even for a species, nor for a genus, as mutely testifies each "scarped cliff and quarried stone."

Therefore the question, "Was the red race of America growing in cultural development at the date of the discovery?" cannot be answered by general platitudes about human progress. Here and there, doubtless, true examples can be quoted of improving and advancing communities in the New World. Were they more than the few green and fruit-bearing boughs on some ancient and decaying tree? There is sad cause for the point of interrogation. Let me state it.

Suppose we choose the half dozen or so areas over the continent where modern archaeology discovers the highest developed ancient culture, and compare their condition with that of the same areas at the time of the discovery. This is practicable, and it seems fair. It ought, indeed, to be convincing, if the general reply should be the same.

Let us begin at home, with the fertile valleys of the Ohio and upper Mississippi rivers, now teeming with their millions of inhabitants, the very granary of the world.

What was it when the first missionaries and white traders penetrated its expanse? An uninhabited desert, peopled by a few vagrant hordes of hunters, without fixed abodes, leaving no mark on the soil of their fugitive occupancy.

What was it, five or six hundred years before? A thickly peopled land, its productive river bottoms waving with planted corn, nourishing an industrious population, skilled in the arts of the potter, the weaver and the stone dresser; a people who piled up defensive works five miles in circuit and involving the transportation of six million cubic feet of earth and stone (Fort Ancient); who erected over their dead heroes massive tumuli some seventy, some ninety feet in height; whose gods were limned on the soil in graceful figures hundreds of feet in length; whose commerce was of such extent that it brought to their temples and firesides the mica of the southern Appalachians, the shells of the tepid Gulf of Mexico, the copper from Lake Superior, even the obsidian from the volcanoes of the distant Rockies.

Was not this a civilization lost, and lost forever, to the American race?

Change the horizon to the far Southwest. There, in an area four hundred miles square, we find the plateaux seamed and fissured with water courses flowing in deep ravines called canons, often sinking from two to six thousand feet below the surface land.

* Abstract of a Lecture delivered May 29, 1897.

Clinging like swallows' nests to the sides of the canons, perched on rock-shelves or under projecting ledges, are thousands of little houses, neatly built of dressed stone and mortar. Their lines are workmanlike, meeting at measured angles or graceful curves. The debris in them contains deftly turned and colored drinking cups and jars, implements of bone and stone, weaving apparatus and webs of woven stuff. Even their window shades are discovered, and they are of narrow slats of wood, just like those still found in our old farm houses. Everything betokens a skilled, sedentary, industrious people.

Were they there at the discovery? Not a single soul. Though we have the records of exploration back to 1540, we have not a tittle of evidence that any of these cliff dwellings held its proper occupants at or since that time. Prowling savages roamed the canons, arid desolation crowned the plateaux, when first they were seen by white men. It was another lost civilization.

Take another culture, close to the last mentioned, that of the pueblo builders.

There are still pueblos; there were seven or more in 1540, when Coronado explored the land. Their inhabitants build walls of adobe, and maintain a painful existence by planting small patches of corn and learning the art of starving. But what is the pueblo culture of today compared to that of perhaps a thousand years ago? We know what that was by the still stately ruins of deserted houses, far surpassing in size those now inhabited. One building of the Casas Grandes is 800 feet long by 250 feet wide.

But more marvelous is the vast irrigation works of these unknown peoples. In the Salt River valley there still remains one of their aqueducts twenty feet wide, four feet deep and five miles long. The soil all along it is a mass of cultural debris, pottery, bricks, stones and bones. There is reason to believe that they had one or more domestic animals, and unquestionably a dense population then filled this favored spot and many another like it.

There is no comparison between their civilization either in density or development, and that of which we have historic records in the area mentioned.

Go further south. Ascend to the temperate plateau of Central Mexico, where along the fertile borders of the lakes Cortes found the imposing city of Teushtitlan and the strong federation of the Aztec tribes. Cortez had not expected such a culture as he there saw. In his letter describing it, he expresses his astonishment. Their arts, their markets, their government, their buildings, all surprised him. No wonder, for, think of it, the Aztec government required for its literary work 24,000 reams of paper annually!

Was this strange city of the lakes the pinnacle of a long progress? Ah, no! A dozen miles from it, in sombre silence, ruined and desolated, gloomed the majestic remains of a far more wondrous construction, the "City of the Dead," *Testihuacan*. There rose two mighty pyramids built in time beyond tradition, one 150 feet in height, the other and greater, mounting 216 feet into the air over a square base 750 feet on each side. A solid enclosure of masonry thirty-two feet in thickness served as their *temenos*. Nothing elsewhere in Mexico, nothing elsewhere in America, equals this giant structure.

Who built it? Who built the neighboring but less remarkable pyramid of *Cholula*, itself surpassing in cubical contents that of *Cheops*?

No one knows. Even tradition is silent. Fable alone gabbled of "*Tolteca*," children of the sun, long since gone; magicians, millions in number, taught of the gods.

Let us seek this lost civilization elsewhere in Mexico, if we can find it. We may go on to Oaxaca, and stand before the gloomy sepulchral palace of *Mitla*. It is built of stone blocks with grecque patterns outlined by inserting smaller pieces, twenty-eight distinct patterns in all, more than on any other building in

the world. The facade is 130 feet in length, and some of the stone blocks are twenty feet long, of hard granite. We know neither its builders, nor when it was built. Nor did the Zapotec Indians know, who lived there when the Spaniards first came. The best archaeologists today doubt if that tribe was ever equal to the task. Another lapsed culture.

Undeterred by this, let us turn to the great Mayan stock of Yucatan, Tabasco and Guatemala, the most cultured of all the American race, and seek in them to measure the march of progress. But at once we are checked, for in their own authentic traditions they acknowledge that their glory had departed and their golden age closed with the destruction of the federation and the fall of their capital, Mayapan, about 1420. If we wish confirmation of this, we have it in the undisputed fact that their glorious city of Palenque was an untenanted ruin in 1522; that Copan was probably the same; and that the decay of the former civilization was plainly apparent to the white invaders, and is frequently referred to in their accounts.

So much for North America. Was the race more prosperous in the southern continent?

To be brief, I shall examine only three culture centers, but the most conspicuous of all. The first shall be of that remarkable development along the coast of Peru, near Truxillo and Callas. It is known as the Chimú or Yunca culture, and is quite different from that inland. To it we owe the extraordinary temple of Pachacamac and similar buildings. As potters and workers in bronze the Chimús were remarkable. But they need not detain us. Their culture fell into decay, and their nation was subdued by the Incas, seventy-five years before Pizarro landed.

And at the time of Pizarro, was the Incarian culture, that of the Quichuas, much better off? The realm was torn by internecine feuds; the vast irrigation works of earlier generations had fallen into decay; ambitious edifices were left half constructed; and, as Cieza de Leon testifies, the land was filled with ruins.

More than all, far back of the Quichman culture which the Spaniards found, was another, marvelous, mightier, whose strange monuments at Tiahuanaco and elsewhere remain, the puzzle of the antiquary and the despair of the historian. Its huge stone blocks, monolithic gateways, massive lintels, carved to a nicety unsurpassed by any in Egypt or the East, were scattered around lake Titicaca in the same wild neglect at the time of the conquest as today—tombstones of a perished civilization.

Finally, imagine ourselves transported to the province of Tucuman in the northwest corner of the Argentine Republic. It is worth while, for there we can see the only aboriginal structures in stone, east of the Andes, in South America. They are heavy walls surrounding eminences, fortresses probably; circles and lines of monoliths, resembling those of Stonehenge and Carnac; single upright stones, engraved in curious figures, and the like.

Who created those structures? Vague tradition says "The Calchaquis." Who were the Calchaquis? Nobody knows. What has become of the Calchaquis? Nobody knows. What we do know is that when the Spaniards first entered that province, its inhabitants were wild savages who knew no more about building stone walls than they did about navigating a great circle. Another lost civilization.

Enough of them; enough, and more than enough, to show that in the American race at the time of the discovery we see a race in its decline, drifting toward deeper savagery, toward degradation and degeneration. The writing was upon the wall, the edict had gone forth, the last trump had sounded, and the race was doomed.

D. G. BRINTON.

With a reasonable familiarity with Indian implements, and a great deal of time spent in study of how they were employed, and available records recalled referring to aboriginal life, I would express the opinion that, when first brought in contact with white influences, the North American Indian was living in approximately the lowest stage of cultural development. His arms and implements were of the rudest character; the bow and arrow being probably the highest example of approach to a machine in his possession; he could make fire with two sticks; could grind a blade to a celt or axe, and knew the art of chipping stone; could plait grasses and bark, and work in feathers; used colors, and could cut out wood and stone into boats and bowls. Of art he apparently knew little deserving of the name; he lived in simple houses, or in none at all. I see absolutely no reason to believe that the native had receded in culture anywhere on the continent. Though he had probably a greater familiarity with sources of supply for material and food, there is doubt if there had been any change in his knowledge of manipulating the same.

The mounds are evidences of heaping earth or stone to a height over the dead; or as lookout points; or as places of gathering, and appear to be common to the stone age of the world.

On the southern continent the native had made progress in architecture; used lime apparently; and had made some advance also in the use of metals; with tools and their uses there is doubt how far he was superior to the savage of the northern continent.

The arrival of the Spaniards on the continent, and the coming of the French, the Dutch, the English and Swedes, each and all probably influenced aboriginal life and implements at vast distances in the interior long before there was immediate contact between the races.

That the mounds and their contents are evidences of superior, or even a different, race, I do not believe. The contents of the mounds are so commonly of European origin that the more of them that are opened the more we are surprised that their art contents are influenced commonly from Europe.

JOSEPH D. MCGUIRE.

Ellicott City, Md.

Prof. Mercer's idea is good, that the status of the North American Indian can be best treated by districts. I speak, therefore, of that region which I have studied most, New York and the country north of Lake Ontario. Here it is certain there has been a decadence in stone art, the finest articles being those of an early day. Out of all the beautiful articles of polished stone, so common around the great lakes, the celt or ungrooved axe is the only one of note that survived here 300 years ago. Had the early inhabitants been all of one race, the answer would thus be clear, but they were not. They were distinct in origin, habits, implements and utensils, and decidedly differed from their Iroquois successors. We cannot, therefore, argue from the one to the other. On a broader scale the same thing is true. Our eastern Indians made no stone tubes, bird amulets, gorgets, banner stones, gouges, potstone vessels, or large flint spears at the time of the discovery. It is doubtful whether at that time many made stone pipes, and they certainly did not in New York. In a broad way there had been a falling off in art.

The Algonquin family may at that time have been comparatively new in the East, as the Iroquois certainly were. The real question is thus limited by time and race. Were both these recent families gaining ground at that time? Their predecessors have little to do with the question. We can only judge of the late comers by examining a series of their dwellings, as well as their social and po-

litical condition. As to the first, I am fortunate in being where such a series can be studied. The other depends on observation, tradition and history.

It may be an advance or not to work in clay, rather than in stone. The one is plastic, the other requires more skill. The Iroquois had much taste, and were certainly making fair progress when the colonization of New York began. In boldness of design and general richness of ornament, the earthenware of 1600 was an advance on the century before, and so continued for a time. Old ideas were not laid aside, but improved. This is hardly true of carving in bone, nor did they improve in stone work, for the white man brought them better tools. They were skillful carvers in wood at an early day, as they are yet in a different way. They made thread and nets, and mats for their houses, but an Onondaga squaw makes thread now as her ancestors did 300 years ago. They have not improved their pestles and mortars, nor can the white man do this. They had made a gain in defensive works.

Politically the Iroquois were certainly improving when first known, and their system of elastic union has called forth the highest praise. Morally and socially there may have been an upward tendency, but it is hard to tell. On the whole, however, it may be allowed that this family was progressive, and had not attained its highest possible culture in any way. The proof is too voluminous for a brief paper.

W. M. BEAUCHAMP.

Baldwinsville, N. Y.

I have explored the valley of the Delaware river from its sources to the sea and gathered from its rocky non-tidal areas and from its meadow banks and bluff shores, washed by the unresisted tide, over one hundred thousand objects of stone, fashioned by the so-called Delaware Indian, and the demonstration is complete that the original inhabitant of this river's valley dwelt here so long ago as when the narrow intervals were filled with ice and an arctic fauna roamed the ancient forest; that later, with amelioration of climate and a change of fauna, arose a change of "culture" and more specialized forms of handiwork, particularly hunting and fishing implements; and lastly, the Indian of Columbus' time, with a fuller knowledge of minerals and their value as the crude material for the elaborate outfitting his mode of living called for.

These conclusions have been reached after more than twenty years' close application to the subject and based upon exploration in its fullest sense, and not mere occasional visits to unrelated localities. Every care has been exercised to prevent being misled and the results, as a whole, of endless digging and examination of exposures of quarternary deposits, confirm the conclusions I originally set forth several years ago. The objections raised have, in every case, been answered exhaustively, and only the deliberate mis-statements that so frequently appear in reputable journals, have been ignored. The most recent explorations near Trenton, N. J., conclusively prove the general use of argillite before jasper was mined for implement-making, and that this was even so far back in time that the physical geography of the region differed from that of the present day, and before the present soil had been accumulated. Even this is disputed, but it should be remembered that facts may influence men's thoughts, but men's thoughts cannot alter a fact.

CHARLES C. ABBOTT.

Trenton, N. J.

I may venture to add a few lines to your interesting discussion relative to the culture status of the American aborigines at the period of European conquest. There appears to be a somewhat prevalent impression abroad that there was a general weakening and decline of the forces of native progress, but I have never

been able to share this view; indeed I entertain a very decided feeling that taken as a whole a steady advance was going on.

The growth of a family or nation is in the nature of things not a uniform growth. There are haltings and forward steps in the history of the minor groups, but these can hardly be taken as an index of the tendencies of the race. In the pre-Columbian time famine may have affected a valley or region, interfering with progress, but nature recuperates quickly and the famine period would be limited. Wars must have resulted disastrously to some tribes and thus certain of the less warlike groups whose arts were highly developed would be reduced to a lower level of culture. But the environment that nurtured the higher culture would again in time assert its influence. Complete lapse would be exceptional. Wars were not general and could not affect the great body of a race distributed over a vast continent. There are numerous causes that could have operated to produce local decline, giving the impression to local observers that retrogression prevailed. The invasion of the great Mississippi-Ohio region by the buffalo must have had a profound influence upon the status of the mound-building peoples. The presence of a new and extraordinary source of food supply would give rise to new activities, and agriculture and other sedentary arts—the mainstays of culture—must have suffered greatly; besides the herds were no doubt followed in their migrations by hunter tribes who thus become invaders of the territory over which the herds chanced to range, involving many nations in turmoil. But these conditions were not necessarily permanent and the fertile region would certainly, in the fullness of time, induce a renewal of the sedentary life and its activities. Perhaps even the energies and powers developed by the buffalo-hunting life would have placed the culture movement on a higher plane than before.

Our aborigines were a vigorous people without suggestion of mental or physical senility. They were in nearly, if not all, essentials the peers of any of the races of the world. They were in possession of a continent rich in all essential resources, animal, vegetable and mineral, and although they had not an equal start with some of the old world peoples, they were practicing agriculture successfully and beginning to develop the vast mineral resources in a most vigorous manner. I see no good reason to doubt that they were on the threshold of a career that would have led in good time to the full utilization of the boundless resources of the country.

I speak only in general terms, since a consideration of the state of particular peoples at a given period can be of little value in determining the general tendencies of the race.

W. H. HOLMES.

U. S. National Museum, Washington, D. C.



PROF. HILL-TONT ON SURVIVALS OF THE STONE AGE AND THE SOURCES OF JADE.

I have never myself witnessed the manufacture of any stone implements by the Indians; nor do I know of any person in the Province who has. The manufacture of stone implements is now entirely unknown to the modern tribes of British Columbia. A few old men of some of the tribes remember the use of such implements—(indeed in the interior among the northern Denes the stone scraper is still in use for hide dressing)—but very few indeed know how to make them. The use of the Pertle hammer is common here still. I have often seen the Indians here use it—in fact they prefer this tool to the white man's hammer. They use it for canoe making and cedar splitting to drive their wedges. This is the only stone implement that is commonly employed by the present Indians of this area.

Father Morice, of the Stuart Lake Roman Catholic Mission, B. C., tells us in his "Notes on the Western Denes," how the old-time Denes manufactured their arrow-heads. "The first operation," he says, "consisted in roughly blocking off with a hard stone the pieces of flint (?) the removal of which was necessary to obtain a vague resemblance to the intended weapon. Then grasping the flint lengthwise with the closed fingers of the left hand, the arrowsmith carefully pressed off the flakes with an elongated stone held in his right hand until the desired form was obtained. A piece of buckskin served as a pad to protect the hand against the asperities of the point. I owe," he goes on to say, "these details to an old chief who has been an eye witness to the operation. I should add that in not a few cases a moose's molar tooth replaced the long chipping stone. I know also of a few arrow-points the sharp edges of which have been polished off by friction."

You will gather from this that the art is a lost one; and though some of the "old-timers" will tell you they have seen such and such things done, I am inclined to think they not infrequently are unwilling to acknowledge that they know no more than the "new-comers," and draw somewhat upon their imaginations. Steel and iron utensils have been in the possession of the natives of this Province for at least a century, and their superiority generally brought about the disuse of stone before the oldest "old-timer" arrived. My experience of "old-timers" leads me to accept with a great deal of caution any information they may give on a subject they were admittedly not very interested in at the time when they might have acquired the information. The more sincere of them will admit that they can't remember, not having taken any interest in the matter; and if the oldest Indians scarcely knew how their ancestors made their stone tools, etc., it is not likely that any old-time white man will know.

My time is so fully occupied that I can not now enlarge on Indians and Indian modes of life in this region. On this subject I generally embody information I may obtain in reports to one or the other of the learned societies; but it gives me pleasure to tell you that my visit to the Lytton district of the Fraser river this summer, in company with Mr. Harlan I. Smith, resulted in making the fact quite clear where the natives of this part of the Province got the material from which they manufactured their jade implements. I discovered, and also pointed out to Mr. Smith a great number of waterworn blocks of jade, or, more properly, nephrite, along the banks of the Fraser at this point, some of which, taken from the old camp sites on the Lytton ground, bore the marks of cutting; and the interesting feature of the whole discovery is that these marks show clearly and distinctly that the Indians employed two methods in their stone cutting and not one only as hitherto held. On some of the jade boulders there is a rounded groove, evidently made by grinding; on others the groove is angular, showing that the block had been cut by some pointed instrument. This instru-

ment, as the old Indians informed both myself and Dr. G. M. Davidson, on different occasions, was a piece of harder stone, such as quartz crystals. I have myself experimented on the boulders with an agate and find it quite easy, though of course slow work, to cut grooves similar to those cut by the primitives themselves. With regard to the rounded grooves, it has been variously stated by different writers that they are produced by grinding with a bow and sand; or with a piece of wood and sand. With regard to these methods I would like the gentlemen who make these statements to try and produce a groove such as is found in some of these stones by these means. It is quite possible to grind the groove deeper by these methods when once it is started, but it is physically impossible to start a cut or groove in this manner. A moment's reflection will convince any one that the rounded, water-polished, slippery side of a hard boulder can never be cut into by drawing a bow over it; or even by rubbing it with the edge of a board in conjunction with sand. To begin with, it will be impossible to keep the sand upon the stone, and further, both the bowstring and the wood would wander far too much ever to cut a straight line, as all the cuts I have seen are, even if the sand would lie on the stone. We found near many old camp sites pieces of worn and ground sandstone similar in texture to the grindstones of commerce. Some of these have rounded edges which fit exactly into the rounded grooves in the boulders, and that it is possible to make grooves in the jade by this means I have proved by making them myself. The conclusion therefore at which I have arrived, after extended considerations and experiments, is this; that the rounded cuts were probably effected by means of a sandstone grinder; the angular or sharp cuts by crystals of quartz or other material. I may say that no jade boulders having the sharp, angular cuts or grooves had been found or seen before I discovered mine at Lytton. I enclose with this a rather poor photograph of a trio of these worked stones, (too imperfect to be reproduced—Ed.) the largest of which shows even in the photograph the acute cut in it where the piece taken for making an implement has been broken from the mass. There is upon the upper face of this block, which weighs about 75 pounds, a second shallow groove absolutely identical in appearance with one I have myself made alongside it by means of a crystal borer of agate taken from an Indian grave. So, whatever may have been the method of cutting the rounded grooves, the angular ones were cut as stated by the natives themselves, by means of crystals. It was, as you know, at one time thought that the possession of jade implements among the American Indians pointed to their migration from the north, where the jade has been found in situ; but jade implements can no longer be regarded as having any ethnological value. There is enough nephrite in the bed of the Fraser to supply the whole world with implements of this material, and there are probably beds or boulders of it in many other parts of the great Pacific chain from which the jade implements and belongings of the American Indians undoubtedly came. There is no doubt about the material being genuine nephrite. Dr. Harrington has analyzed several specimens from the Lytton region, a description of which may be found in the Eighth Volume, Transactions of the R. G. C., Section 3, page 61.

I have written very hurriedly and consequently very badly, but I hope you will be able to read it. I would like to take this opportunity to state that I am open to carry on any investigations in this Province among the Indians for any one your way who will be good enough to supply funds for same. We have just begun an ethnological survey of Canada, for which funds are very much needed, the British Association not being well supplied in this respect.

CHAS. HILL-TONT.

Member of British Association, Etc.

Bockland College, Vancouver, B. C.

A SEASON'S RECORD FROM THE EXHAUSTED EAST.

With the sealing up by the frost of the source of the archaeologist's yield in the north, comes the season for taking note of the discoveries and observations of the past months. Accordingly, in the following paragraphs I wish to set before the readers of *The Antiquarian* a record of the finds made by myself in the neglected East, and here within the limits of the city of Troy, N.Y. While there have been, and still are, in this region, numerous collectors of elegant specimens for the cabinet shelves, little, I am inclined to think, has been undertaken from a scientific motive; and so it happens that a rich mine of antiquities remains here to this day unworked; and it is specimens from this mine to which this paper relates. In a brief correspondence in the *Antiquarian* for August, I gave a sketch of this field, together with outlines of some of the objects found up to the date of writing. Since that time persistent search has brought to light still more interesting things, which will be here reported with such helps from the artist of the *Troy Budget*, and from the writer's pencil, as will serve to convey a fair idea of the collection. It was in May last that I discovered the main object, which is no less than a monument of the old race which occupied this territory—how long ago no one can safely say. From evidences surrounding it, and from want of a better name, I have called it "the rock altar." It is an erratic sandstone boulder, five feet in length by two and a half in width, and of, as yet, unexplored depth in the soil. From one end is scooped out a symmetrical bowl, four inches in depth and twelve by fourteen inches across, with an outlet or channel down the north side of the rock. The remainder of the rock's surface has been in times past subjected to intense heat from fires kindled upon it, from which cause it has become splintered and broken horizontally to the depth of several inches, and the original gray of the material discolored to a reddish brown. Large and small scales from this burned surface are unearthed from the soil around the erratic, all showing the action of fire, some of them being burned a deep red color throughout. This splintering has lowered the edge of the bowl an inch or two on the side where it occurs, but has not otherwise changed it. Aside from this, there is no trace of fire action on that part containing the cavity. Nor is there any such trace upon the circumference of the rock. When discovered, the block was covered with earth, with the exception of a projecting end—the end containing the excavation. This exposed some three inches of the outer rim of the bowl, and this led to the discovery. The fact of the covering is rather singular, as a smaller rock beside it, derived from the same source, shows a full foot's depth of surface above the soil. Hence I am inclined to think the earth covering artificial, perhaps done for purposes of concealment, or for furnishing a soil-bed for the fire. I had long been looking for a stationary mortar, and at first believed I had found one after all. But a careful examination made this view untenable. If intended for a mortar, it had never been used as such, as the inner surface of the excavation, instead of being smoothed by pounding, was as rough and unworn as at the moment the picking was completed. And the fired surface adjoining had its negative word to say on the subject.

I considered that the firing might have been done by farmers in clearing the land, while burning brush, but this view was given up when on digging around the whole rock, charcoal in a finely divided state was found to occur at the depth of two feet in the compact clay, and none nearer the surface. Hence, I believe the object to be an altar where at ancient times were practiced the rites of religion or sepulture. Other discoveries immediately surrounding would seem to support this belief. All around in the soil are found slabs of sandstone ranging from six inches to two feet in length, and of various breadths. All are thin, none of

them being more than an inch and a half thick; and all of them are smooth; and while some of them appear water-worn, others have undoubtedly been shaped by hand into their present forms. I have picked out several well-defined implements from among them, all being of large size. One is eight inches long by five broad, curved in outline, and combines a point and crescent scraper, chipped in free style. Some resemble plowshares; others huge spear-points, perfectly proportioned with well beveled edges—a feature to which the material lent itself agreeably. These stones sometimes occur singly, but are mainly found in groups of five up to a dozen, and where not disturbed by the plough, are laid flat in series, and cover deposits of smaller implements, as clubs or batons, knives, large points, disks, etc., together with grayish matter worked over by earthworms, which may have been ashes.

In one case a burned bone, evidently a portion of a joint, but whether animal or human is unknown, came to light. All of these objects—the implements—are exceedingly rude, but exist in considerable variety. Some are of flint, but more are of sandstone; and in nearly all cases the material is greatly modified by disintegration and discoloration. Some of those of flint flew to shivers at a blow from my cane. Thick sandstone objects, accidentally broken by the spade in removing them, are found greatly decayed on all sides to the core. All are of large size. Nothing so small as an ordinary arrow or spear-point has been found. The ordinary forms of Indian implements are not found over this tract of two hundred acres containing the altar and rude implements. There are club-like forms, one specimen being notched near the smaller end for purposes of suspension. Thin disks occur, one lot consisting of a series of six, one laid upon the other in order of size, all being held well together by the stiff clay, as with cement. Large choppers are here a foot long and half a foot wide, thick at the back and beveled off to an edge on the other side, one specimen having two adjoining depressions on one side near the back, for a finger grip. These choppers, as some of the other sandstones of smaller size, are external flakes struck off a block, and afterward pecked on the thinner edge to a bevel. Most of the flints are of the oval and disk-like forms, thick, and with edge all around. A few are truncated at the base, tapering to a point. The sandstones are mostly of oval form, with flat bottoms, high spines and sharp all round.

A few are formed from quartzite pebbles; and one specimen found in the creek, of the peachstone form, has been pecked from a greenstone pebble.

What are these, and whence? To one familiar from boyhood with nearly all the known forms of tools of the prehistoric Indian, these ruder and larger forms are at once recognized as of a different character by their whole testimony. They cannot, seemingly, be hitherto unobserved residue remaining of Indian manufacture after the gathering of the finer objects from a site. A careful search among the known Mohegan and Mohawk sites, of which there are many hereabouts, fails to show that the modern Indian employed these forms—only in one case, where the sites of the old and new overlap. Nor does it appear that they are unfinished tools. If they were so, where are the finished ones, of which these are the rudiments? Again, would they not be wholly superfluous to a people manufacturing and using the finer, lighter and more adaptable tools that we know the Indian to have possessed? All the more so as they were evidently made to subserve the same end. They seem to be mixed indiscriminately through the boulder clay about the slate ridges here. Some are turned up by the plow, others have to be dug for, and some occur at considerable depth and are brought to light in the cutting of streets and digging of cellars. I have no theory to advance with regard to these finds, but my unprejudiced belief is that they belong to the ancient stone age—the paleolithic, though to a late epoch of that age,

as I have gathered specimens from the river gravels near here, all of flint, and which bear most of the characteristics of the Chellian implements, though somewhat less skilfully made. One more observation before I close. I am persuaded that these evidences of ancient man exist all around us to a greater degree than we suspect, especially in the neighborhood of our lakes and streams, both near the surface and deep beneath it, and that with no more than ordinary judgment and with an eye trained to detect every shade of the artificial upon the stones beneath our feet, the student may be able to recognize and recover many a precious record of man's life in that remote time.

O. C. AURINGER.

Troy, N. Y.

PREHISTORIC FLINT QUARRIES IN SOUTHWEST MISSOURI.

One of the most interesting industries of prehistoric Indians in Southwest Missouri, as shown by remains and ruins, was the mining of flint for the manufacture of implements for use in their various avocations in life, either in times of peace or war. When we study the prehistoric Indian of the Stone age we are led to believe that he not only considered well the special purposes which his implements were intended to perform, and the form and shape by which they were best fitted to faithfully fulfill their intended mission, but he seriously and rightfully considered the quality of material from which could be formed implements that would be of the greatest durability and convenience in working quality. This nature had abundantly provided for him, but he had to wrest it from her store-house by his individual efforts, many remains of which are to be found in various localities in southwest Missouri and adjacent localities. Having visited some of them, and they having the same general characteristics, I will endeavor to give a brief description of them.

These remains of old flint quarries are erroneously considered by the resident inhabitants to be remains of old Spanish gold or silver mines; but a careful study of them will dispel such an idea. These remains consist of a series of elevations and depressions of the surface of a hillside, not unlike mounds and pits, the pits being from mere indentations to pits some ten to fifteen, or more, feet deep; the mounds being only a few feet in height, probably owing to the action of time and nature; thus gradually wearing them away and gradually filling the pits adjacent to them. The area covered by them varies with the location of the quarry.

There is one located about seven miles northeast of Seneca, Mo., covering an area of about ten acres; another one located about three miles northwest of Golden City, Mo., covering an area of about one or two acres; and one located about eight or ten miles southeast of Lamar, Mo., covers about four acres. Of those most carefully examined I found the surface of the mounds and the pits covered with flint fragments of a most excellent quality for flaking purposes; many fragments showing evidences of workmanship. I made no excavations, but within an area of one of the excavations has been digged a pit by "prospectors" for "mineral." Upon examination I was able to note that the flint in that particular locality was mostly, if not entirely, found lying between strata. I have not been able to detect any evidence of fire having been used to disintegrate the rocks, although it may have been used. In localities adjacent to the quarries numbers of implement "blanks" and fragments are found.

Many of the specimens are very crude and imperfect, which are probably unfinished or rejected specimens. Where a spring is situated near the quarry its immediate locality can be relied upon as being a fruitful locality for the Indian relic hunter, this being probably the site of the workshop and village.

I have been able to secure quite a number of specimens from this immediate vicinity and find that the material in the most of them corresponds with that found at the site of the quarry; which material is a white, almost flawless, easily-flakable flint. Numbers of axes and other similar implements are found, but they, like the arrow and spear-heads, do not show as perfect degree of workmanship as specimens in many other localities. But possibly this may be accounted for by saying that a great many of them may be either unfinished or rejected specimens, as it was near their work-shops, and no doubt many specimens were rejected or cast aside, to become afterwards lost.

There are other quarries, some of even greater capacity, and covering a greater number of acres, that I have not visited.

These quarries have been found in the Indian Territory and in Arkansas, which probably do not differ greatly in general characteristics from the description given above, as the localities are lying adjacent and are somewhat similar in geological formation.

The above brief description is given, describing the quarries as I saw them, and only for a short time, and is not perfect in description; but is, as was intended, only a brief outline or description, which may be the means of urging others to a more complete investigation of what I consider one of the most important industries of prehistoric man in America.

J. M. BROOKS, M. D.

Golden City, Mo.

[Several years ago we examined a series of ancient diggings in the north-eastern portion of Polk county, extending into Dallas county, in southwestern Missouri; fifty miles, or more, east of the locality mentioned by Dr. Brooks. The old quarries were along the rocky bluffs of one or two small tributaries of the Osage river, and in the outcrops of subcarboniferous limestone, resting upon massive magnesian limestone of the Silurian age. The many pits, some of them still from three to six feet in depth, with their corresponding heaps of stony debris near by, all overgrown with large forest trees, were conclusive evidence that quite extensive quarrying had been conducted there, for a considerable length of time, at some period in the remote past.

The prevailing opinion in the sparse settlements of that region, at the time, attributed the labor expended there to "the Spaniards," who were credited with an instinctive knowledge of the existence of silver ore in the earth; or with that intuitive faculty for discovering it that some peculiarly gifted persons have for finding subterranean streams of water with a forked switch. A few there were, however, who had read something of the early movements of the French in the Mississippi Valley, and concluded, very plausibly, that the digging had been done by the employes of Renault, who, located with his 500 slaves at Fort Chartres, above Kaskaskia, in the Illinois territory, sent his agents all through the Indian country south of the Osage to prospect for mineral.

On investigation, the nodular masses of cherty flint intercalating the limestone stratas, and the profusion of flint chips and fragmentary flint implements scattered around, were convincing proof that this was the mineral sought, and that the ancient miners who utilized it and knew its value were Indians.

In his reports of the first Geological Survey of Missouri, Professor G. C. Swallow mentions "old diggings" occurring in different parts of the state, and says of them; "we were convinced they were made by the Indians in search of flint, the most valuable mineral, in an economical point of view, known to them."

We are under obligations to Dr. Brooks for his interesting account of the prehistoric flint mines of his locality; and we will be very grateful for further information, from any quarter, relating to this important branch of primitive Indian industry. Ed.]

NOTES ON DELAWARE INDIAN VILLAGE SITES.

No. 5.

One-half mile north of sub-camp site or ward number three, is Durham cave. This cave and its relics are intensely interesting because of bearing on the antiquity of man in America,¹ and its central position in this extensive prehistoric village site will not be misnamed by calling it the main or central ward, or number four.

We will endeavor to herewith give as brief a description of this interesting bone cave and the fossils and relics discovered in its gloomy recesses as we possibly can.

The cave is located a little north of Durham creek, and not far from the Durham iron works. It is in the steeper portion of the anticlinal arch of the limestone exposure, and in its primitive condition had a length of about three hundred feet, trending southwest by south; about twelve to fifteen feet in height and twenty feet in width. The entrance to the cave was at an elevation above the Delaware river of at least sixty feet, partly obstructed by a ledge of limestone running transversely across the opening, allowing only two or three persons to enter abreast. It consisted of three main departments with several lateral caverns leading east and west; also several rooms elevated above the cave floor a height of about twelve feet. These rooms were named "Queen Esther's rooms."² They were composed of enlarged passages opening into opposite rooms of from ten to twelve feet wide, and probably ten feet high, ending in a narrow undefined fissure.

Each apartment or level was from ninety to one hundred and twenty feet in length, and lead with a steep incline of about ten feet in depth into the next room or level. All the apartments or levels were partly obstructed by limestone ledges running transversely across the opening. At the extreme southern end of the cavern is an excellent spring of good water, the temperature of which registers fifty-six degrees summer or winter.

Professor H. D. Rodgers, chief of the first Pennsylvania geological survey, in 1845-46, while engaged on the survey in Durham, Bucks county, Pennsylvania, visited the cave, and finding numerous fossilized bones in it, collected several boxes of them and shipped them by stages to the Academy of Natural Sciences at Philadelphia, where they remained stored away until the writer called

¹The Antiquity of Man in the Valley of the Delaware will be fully discussed in a separate paper, immediately following the completion of the present series of papers. Since working up our field notes, in preparing the series now being put out in *The Archaeologist* we find so much material pointing to undoubted facts, and finds of man's great antiquity in this valley that we have concluded to place it aside for a separate series of articles, which, if not conclusive to the average theorist in the study of ethnology, will, however, show to the plodding, thoughtful, practical field archaeologist that man of a rude type once existed in this valley, and slowly evolved to a more advanced status.

²Queen Esther's rooms, so named after an Indian woman, or "Catharine Montour," who was known to the English as "Queen Esther." She is known to have visited the Indians inhabiting Pechequeolin, when on her way to Philadelphia, and it is probable that during these visits, she may have spent some time in the cave and thus her name became connected with the rooms. Professor H. C. Mercer in September, 1893, explored the so-called Queen Esther rooms in the hope of finding some significant archaeological facts relating to primitive man. Among the numerous and instructive finds was the discovery of the bones of the extinct peccary, *Mylohyus Pennsylvanicus*, mingled with the remains of still existing animals. The remains of this animal differing from those of existing species, this find is of especial interest in view of its being contemporary with the tapir, the mastodon and fossil sloth. At Hartman's cave, fifty miles up the Delaware river, Mr. T. D. Paret found a peccary identical in species with the Durham cave animal.

the attention of Dr. C. C. Abbott, of Trenton, N. J., and Professor H. C. Mercer, of the museum connected with the University of Pennsylvania, Philadelphia, to the fact, in the spring of 1887. Dr. Abbott and Professor Mercer were then in the vicinity of Durham exploring the Durham jasper quarries, piloted by the writer. After the return of Dr. Abbott and Professor Mercer to Philadelphia, they proceeded to the Academy of Natural Sciences, and with the aid of Professor Joseph Leidy, of the academy, the following animal remains were identified: Black bear, *ursus Americanus*; raccoon, *procyon lotor*; gray fox, *vulpes cinereoargenteus*; skunk, *mephitis mephitis*; woodchuck, *arctomys monax*; porcupine, *erithizon dorsatus*; beaver, *castor fiber*; muskrat, *fiber zibethicus*; gray squirrel, *sciurus Carolinensis*; woodrat, *neotoma Florida*; gray rabbit, *lepus sylvaticus*; deer, *cervus Virginianus*; elk, *cervus Canadensis*; moose, *alces Americanus*; wild turkey, *meleagris gallopavo*; box-turtle, *cistudo clausa*; snapper, *chelydra serpentina*; snake, *entaenia sirtalis*; sturgeon, *acipenser sturio*, and catfish, *amiurus atrarius*.

The writer remembers when a boy visiting this cave and finding numerous bones of man and beast lying around, besides stalactites depending from the roof of the cave; also fossilized cherry pits in the stalagmite cave floor.

Many of these fossil bones and cherry pits, bones of fishes, bats and other reptiles were sent to eastern Pennsylvania in care of Dr. Swift, and by him placed in the museum in Pardee hall, connected with Lafayette college.

Numerous fossil bones, horns of beasts, teeth, skeletons of men and animals were carried away by the numerous visitors to the cave. During our boyhood days this cave was the rendezvous for numerous parties, some driving a distance of forty miles or more. Especially was this the case during "Indian summer" and on Sundays. Many of those who visited the cave were interested in science, which at that time was all Greek or Hebrew to us; but later on we remedied that part, by storing our own brain with those essential languages. As late as 1856, fossil animals were discovered, while the workmen were at work demolishing the cave. On one occasion William Walters, of Pingelsville, this state, was standing by, watching the progress of cave destruction; when, immediately after a heavy blast which tore away a large portion of stalagmite, he saw the skeleton of a large sized animal firmly imbedded in the rock in a standing position. A few days after, he informed the writer, but the curiosity seeker got ahead of us and the bones now grace the collection of another.

Numerous axes, celts, hammer stones, arrows and spear-points were picked up in this cave. Along the west side of the interior of the cavern, in the first apartment were four or more fire places, so arranged that the smoke curling up from the fire found exit through openings in the cave roof. The openings were produced by the crumbling of softer strata or seams in the limestone rock, and the percolation of surface water through them during the vast ages supervening, before the advent of primitive man.

In the fall of 1893, Professor H. C. Mercer made an exhaustive exploration of the cave, the results of which are of incalculable value to archaeology and are printed in the publications of the University of Pennsylvania in volume six.

About one hundred yards west of the cave was located the observation camp, overlooking the "Durham bone cave," and a portion of Pechequeolin. (Pechotwoollenk, where there is a great depression of land.) At the observation camp site we found six cooking or circular mounds, composed of burnt stone, imbedded in ashes and loose soil; also knives of jasper, argillite, etc. We discovered no hammer stones or other implements at this sub-camp, although we often looked for them when passing over the "old trodden trail."

Riegelsville, Pa.

CHARLES LAUBACH.

CENOTES.

The assertion of Dr. J. Miller in his interesting and acceptable article in the November number of the *The Antiquarian*, entitled "Montezuma's Well," that this is the only one of its kind known to civilized man, causes the writer to place before his readers a short account of a few similar natural reservoirs; although not as large, situated in the southern part of Mexico, in Yucatan.

In the ancient Mayan city of Chichen-Itza can be seen two of these remarkable freaks of nature, the smaller called the Sacred Cenote; the larger the Cenote Grande.

I quote Mr. W. H. Holmes, who in his admirable production, "Archaeological Studies Among the Ancient Cities of Mexico," which is the result of a three months' excursion into the interesting states of Yucatan, Chiapas and Oaxaca,¹ pages 136-37, says: "The former was probably a chief source of the supply of water that made the development of Chichen possible, and the imagination is wont to picture the trains of tireless carriers moving, almost without ceasing, up and down the steep pathway and back and forth in the city. This great well is some seventy feet deep and averages perhaps 150 feet in diameter.* * * * The pool which rests calmly at the bottom of the pit is shallow at the side next the steep pathway where the walls are most broken down, but in the center and against the perpendicular wall is of unknown depth. The water is at present sufficiently pure to serve for drinking and culinary purposes; but its taste is naturally affected by the vast accumulation of vegetable matter swept into the gaping orifice each year. No current is perceptible and if there is any connection with a subterranean stream it is by seepage merely, the erosive agencies not being sufficiently active to clear away the accumulation of debris descending from above.

"The Sacred Cenote is larger and more symmetrical than the other, and, occurring in the midst of the somber forest, is a most impressive and awe-inspiring spectacle. Its charm is enhanced by the weird stories of human sacrifice associated correctly or incorrectly with its history.

"The walls are nearly circular and approach the perpendicular closely all around. They are diversified only by the encircling ribs and pitted grooves produced by the uneven weathering of the massive, horizontally imbedded lime-stones.

"The water has a light coffee color and looks very impure. It is shallow on one side and of unknown depth on the other. A small, tomb-like ruin is perched upon the brink.² It is conjectured that this structure had something to do with the ceremonies attending the casting of victims and treasure into the terrible pool."

Desire Charnay³ draws so vivid a pen picture of the offerings consecrated to this sacred and, at the same time, terrible well, that I can not help but give the story to my readers, who, I am certain, will read it with avidity:

"Hither pilgrims repaired, and here offerings were made; for Chichen was a holy city, and among her shrines the Cenote held a conspicuous place, as the following passage from Landa will show: 'From the courtyard of the

¹This publication was issued in two parts by the Field Columbian Museum, at Chicago, Ills.

²See figure two in Dr. Miller's article on page 283, where in a niche near the top of the well is to be seen a building in ruins which may have served the same purposes. Perhaps similar rites were enacted here.

³The Ancient Cities of the New World, page 353. He quotes from Bishop Landa: *Relacion de las Casas de Yucatan*, sec. LII., page 346.

theatre, a good wide road led to a well some little distance beyond, into which in times of drought the natives used to throw men, as indeed, they still do—1560—as an offering to their deities, fully believing that they would not die, even though they disappeared. Precious stones and other valuable objects were also offered; and had the country been rich in gold, this well would contain a vast quantity, because of the great veneration of the natives for it. The green color of the water is due to the foliage. On its banks rises a small building filled with idols in honor of all the principal edifices in the country, exactly like the Pantheon in Rome.”

M. Charnay made an attempt to recover some of the treasures contained in the well, but could not, owing to the height of the walls, the depth of the water and the accumulation of earthy matter which has been falling in for several centuries.

Near Chichen is another important well, known as Xcolac, shaded by beautiful trees and full of fish. Its water is cool, fresh and pure. No buildings have been erected around it. The course of these natural depressions is fully described by Desire Charnay as follows: “Although Yucatan is uncut by rivers or streams, an immense sheet of water and ill-defined currents occupy its under surface; these waters are near the surface along the coast, but low down in the interior of the peninsula, where the calcareous layer is of great thickness. Localities where these waters can be reached, whether through the natural subsidence of the soil or artificial pits, receive the name of cenote. When the water flows at a slight depth, and the calcareous layer has only been partly eaten away, there follows an irregular sinking which forms a cave open from side to side, but when the crust is thicker, and the stream has a regular course, the soil is generally corroded in a circular space; and the vault thus formed lacking support, falls in, when an immense open well is made, as for instance, at Chichen-Itza. Often the crust is so deep that the soft parts only crumble down or are carried away, leaving frequently a small aperture towards the top, fashioning a real grotto with stalactites and stalagmites. It sometimes happens that the calcareous crust is exceedingly thick, when a gigantic subterranean passage is formed.”

All archaeologists should read the very interesting work, “The Hill Caves of Yucatan,” by Henry C. Mercer. He, in a learned and attractive manner, describes these underground cenotes or caverns, many of which were explored by him, in search of an ancient man other than the red Indian.

Allentown, Pa.

A. F. BERLIN.

¹Ibid. pp. 290-91.



SO-CALLED DRILLS OR PERFORATORS.

Ten years ago I became interested in the long, slender, chipped implements called drills, or perforators. Interested from the fact that although I called them drills I failed to find one among the large number passing through my hands that showed any signs of having been used as a drill or perforator.

It would, I presume, be possible to drill a hole in a piece of soapstone, or steatite with the slender flints, providing the flints were straight, and extreme caution was used in the drilling. But when the flints were curved similar to the so-called fish spears, I could not understand how the implement could have been used as a drill, after a few arguments with local collectors about the probable use of the implements. My interest increasing as I gave the matter consideration, I came to the conclusion that I would collect as many of these so-called drills as possible, and if I could find one or more that showed unmistakeable signs of having been used as a drill, I would accept the conclusion of collectors generally, and consider these implements as drills or perforators pure and simple. In all my twenty-five years of experience in collecting and dealing in flint implements I have failed to find a single specimen that would lead to the conclusion, on my part, that these implements were drills or perforators.

I have had a number of small slender flints that range from one inch to one and one-half inches in length, with polished ends, ground and polished from long use. From the size and the shape of the polished end I came to the conclusion that they were used as markers in decorating pottery, and in the seaming of skins when the skins were being made up into moccasins and other wearing apparels.

I have had several copper implements made in every way similar to the long, slender flint implements; but being very pliable and hardened only by compression (hammering), I know that they could not have been used as drills; but they gave me the first real proof that my conclusion as to the actual use of these implements was correct.

I had determined in my own mind, from the start, that these long, slender flints, with their broad notched bases, were neither drills, perforators or projectile implements, but hair pins.

This conclusion has been greatly strengthened by my securing the same forms in bone and shell, and also in the beautiful flints numbered 1 and 3, shown in the illustration.

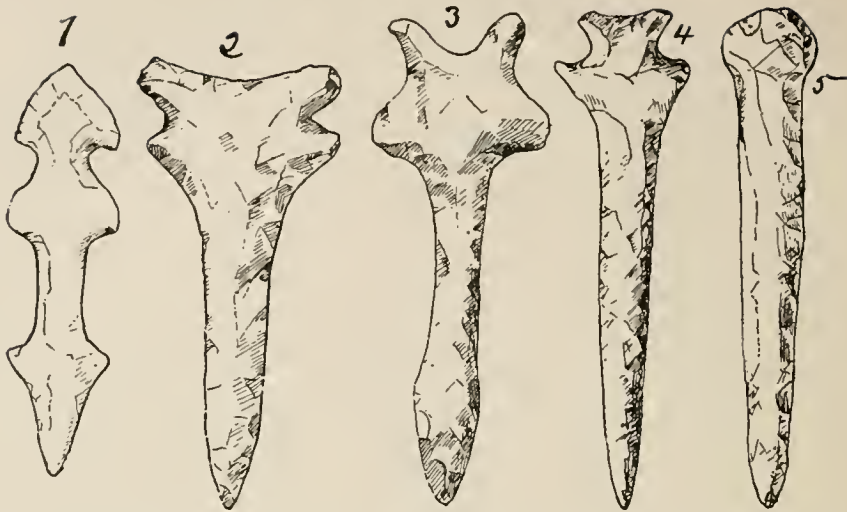
No. 1 is made of clear, transparent quartz, or possibly of a large crystal, and is two and seven-eighths inches in length.

No. 3 is a fine piece of work made of jasper, of a dark red color, and is three and three-eighths inches long.

I would call the reader's attention to the barbed point of No. 1, and the enlarged point of No. 3. Nos. 1 and 3 were found in Wisconsin.

I consider that these flints belong to the class of implements called drills or perforators, but I fail to understand how they could be used for the purpose of drilling. If they were used as hair pins, or ornaments for the hair, the barbed point of No. 1 and the enlarged point of No. 3, serve the purpose effectually of preventing the implement from falling out of the hair and becoming lost.

Figures No. 2, 4 and 5 are of the more common forms of the so-called drills or perforators. No. 2 was found in Washington county, Indiana, and is three inches in length and is made of dark-colored flint.



No. 4 is four inches long and is made of jasper of light yellow color; as is also No. 5, which is four and one-eighth inches long. These two flints were found in Gordon county, Georgia.

A Mr. Tibbits, a full-blooded Sioux Indian, when examining my collection, stated that he had seen implements similar to Nos. 1 and 3, made of wood, in actual use as hair pins by some of the old people of his tribe. He said that there were bunches of gaudily colored feathers and other articles fastened to the base of the pin, the pointed or barbed end thrust in the long, braided strands of the hair close to the head, the whole making a very showy ornament for the head.

The long, slender implements are rarely found on the surface. They are found in graves or mounds, all finely chipped. Nearly all of them are made of material evidently selected for its fine colors. Their makers seem to have done on them some of their best work in the art of chipping flint and stone.

390 Worthington street, Springfield, Mass.

G. M. SHERMAN.

CUPPED OR PITTED STONES.

Reading with interest the article on "Cupped or Pitted Stones" in the October number of *The Antiquarian*, and being interested in the study of these implements, I thought, perhaps, that a description of those found in this vicinity might prove to be of interest to those engaged in trying to determine the solution of this problem which confronts all true archaeologists at the present time, namely: What were these peculiar implements used for?

It is the general opinion of archaeologists, I think, that these stones were used as hammers. The objection offered by Mr. Fountain, that the majority of these stones found in his vicinity are brown sandstone, and consequently too soft to be used for that purpose, is very reasonable and very hard to be refuted, especially by one who is not acquainted with the geological formation of that immediate neighborhood. If there were harder substances within the reach of the Indians, and they then chose the brown sandstone, it is evident that they were used for some purpose other than Hammerstones.

It is, however, a fact worthy of notice that the "cupped or Pitted Stones" found in this vicinity were made from the hardest material found here that could be easily handled for this purpose, and have nearly all been selected from the "Columbian Gravel."

My collection of these peculiar stones is not quite so large as that of Mr. Fountain; but in studying what I have and what I have seen in the collections of others, I have noticed one peculiarity about these stones that may, perhaps, be the means of proving why the edges of these stones are not battered. Those stones whose peripheries show no battering whatever are invariably of such a shape as to make it difficult to strike a blow with the edge of the stone; hence, these stones, instead of being held in such manner as to strike with the edge, were held squarely in the palm of the hand and were continually struck at one place, or nearly so, and the natural consequence was a cupped or conical-shaped depression in the center of the stone.

But the question may be asked: Why do not these Hammer-stones, whose edges are used, have these depressions in them?

There may be different reasons for this, the one most generally accepted being because they are not held in one position long enough to wear holes into them; but because of their shape are constantly turned so that each blow will fall on a different place from the one preceding, and in this manner the whole stone, or at least the peripheries, are battered. Or it may be possible that these cupped stones were used as hammers only when pounding upon the end of a chisel, which would have the effect of forming these depressions, while the other hammerstones were used for other purposes.

I recognize the fact, however, that very many objections can be brought up against these ideas. For instance, I have in my collection several stones that were evidently used for the same purpose as these Cupped Stones, and yet, instead of a deep depression in the center of the stone, the whole surface is pecked, undoubtedly in the same manner, and with the same implement as the Cupped Stones.

As to their being lapstones or anvils can hardly be possible, because we find them so small that it would be practically impossible to hold them, or if that were possible, they could not offer resistance enough, on account of their size, to break or chip such hard substances as those from which their arrow-points and other implements were made.

Mr. Fountain asks if these stones could have been used as fire producers.

Recognizing the fact that fire is, and always has been, a universal necessity and that wherever men have been learned in the stone art have been found these "Cupped or Pitted Stones," there is, perhaps, a possibility that there may be some connection between the two; and yet if those stones found by Mr. Fountain were too soft to be used as hammers, they would hardly be hard enough to be of any practical use as fire producers; while at the same time there was plenty of material at hand (jasper, flint, etc.) that would be much more useful in producing fire than the material from which these cupped stones were made.

That this is an important question for archaeologists to solve, is beyond a doubt, and I think that Mr. Fountain has taken a step in the right direction.

Let all who are interested in this important subject give their views on the same, and by so doing and comparing with others, we may be able to arrive at some definite conclusion and thereby be able to correctly classify this peculiar and interesting implement used by the primitive inhabitants of our country, and of every other country that can boast of being inhabited by people versed in stone art.

HARRY J. IVEY.

Raubsville, Pa.

CORRESPONDENCE.

American Archaeologist:

The story about Welsh people having settled among our early Indians, or of western Indians speaking a language conforming with the Welsh of Wales, has turned up a hundred times or more, and evidently rests on the tradition that a Welsh chief named Madoc, or Medoc, came over at an early day and settled here; but it cannot be traced to any historic source. The cause of all this is the similarity of the names Madoc and Modoc. The Modocs had, and have still, a few homes or farms on the northernmost border of California. I have investigated the Modoc language thoroughly and published two big volumes about it, "Contributions to North American Ethnology, of J. W. Powell; Washington City, D. C., 1890," and can say, according to truth, that this language has no affinity to any European or Celtic language (the Welsh is Celtic), neither in its phonology nor in the lexicon, structure, rhythm of poetry, or anything else. So it would be pure loss of time to investigate that matter again—just as much as to discuss the name of "America." Modoc means Southerner; but I doubt very much that Madoc means the same, or anything alike to it.

ALBERT S. GATSCHET.

Bureau of American Ethnology, Washington City, D. C.

The American Archaeologist:

Mr. Warren K. Moorehead, in his interesting paper appearing in the January number of the *Archaeologist*, refers to certain bored crystals found in the Hopewell group of mounds, and asks how the drilling could be done.

The answer is simple in one sense, and may be given in five words, "With a stick and sand." In other respects the answer may not be so simple, for the size and character of the hole may make a great difference. As a reply, however, to this question, in its broadest sense, it may be said that any sand which will scratch an object, when used with wood, will bore a hole in it; second, crystal, crushed, will cut slowly; but if emery is employed, it will cut more rapidly. The number of revolutions to the drill makes every difference in time required to complete a given task. If the object to which Mr. Moorehead alludes antedates white influences, the shaft drill revolved on the knee or between the hands would be used. The whites brought with them the principle of the strap and pump drill, apparently.

J. D. McGUIRE.

Ellicott City, Md.

American Archaeologist:

I worried along very uneasily since reading, in the March number of *The Antiquarian*, your statement that the dog was acquired, along with the variegated stock of vices, by the North American Indians from the early European visitors to this continent; and it came something like the lifting of a load from me when I read your (tardy, but frank) correction of yourself in the *Antiquarian* for December.

Your reference to the experience of Cabeza De Vaca with dogs as a diet, prompts me to offer the additional testimony of observers in the early part of the sixteenth century, which shows that the Indians were familiar with the dog; and also that the Muscogean and Iroquoians were slightly more choice and dainty in their selection of food than were their Spanish conquerors.

In the account by the Gentleman of Elvas, of De Soto's expedition (*Hakluyt's Voyages*, Vol. II, p. 275), it is stated that: "The Cacique sent him (De Soto) two thousand Indians with a present, to-wit: many conies and partridges, bread and maiz, two hens and many dogs, which among the Christians were esteemed as if they were fat wethers, because of the want of fresh meat, etc." And on page 584, of the same volume, we read: "Within five daies the Governor (De Soto) came to Guaxule. The Indians there gave him a present of 300 dogges, because they saw the Christians esteemed them, and sought to be fed on them; for among them (the Indians) they are not eaten."

And again, at the closing summary of the Elvas narrative (*Hakluyt's Voyages*, Vol. III, p. 58), the following list of animals is given: "There are in Florida many Bears and Lyons, Wolves, Deere, Dogges, Cattes, Martens and Conies."

At an exactly concurrent date (1540-'42), Gomara observes, at the conclusion of his account of the Coronado Expedition (*Hakluyt's Voyages*, Vol. III, p. 137): "There are also great dogs which will fight with a bull, and will carrie fiftie pound weight in sacks when they go an hunting, or when they remove from place to place with their flocks and heards."

I have been looking for years for a copy of Buckingham Smith's, or any other English version of Cabeza de Vaca's narrative; and will be much obliged to you, or any of your readers, if you can give me information by which I can secure it.

St. Louis, Mo., 4527 Cook avenue.

C. A. PETERSON.

INDIAN PLAYGROUND.

So Named by Early Settlers.

To the American Archaeologist:

About six miles south of Waynesburg, Pa., is what is locally known as "The Indian Playground." It is situated on a high hill and on the flat summit of the end of a projecting ridge. It is situated near the Great Warrior Trail, of which I may write hereafter. This trail leads from the Ohio river at Moundsville, W. Va., to the Monongahela river, and can now be readily traced through field and forest. The only features, to me, are the pavement and the large pile of stones on the southwest corner. The stone pile resembles a cairn. It has been disturbed by rabbit hunters so much that no surface examination can lead to any definite conclusion.

The strange feature is the pavement. It is very nearly the exact form of a parallelogram, 73 feet wide and 205 feet long. These measurements were taken by stepping, and are not given as accurate. Each line of the boundary is straight. It is practically a bed of stones lying closely together over every square foot of surface. The entire surface is slightly elevated. I paid it my first visit last week. While there I was led to believe that this elevation could have been caused by continually plowing the soil away from it. As I came away I viewed it from hills two and three miles away and now think the elevation is too great for such a theory.

Different attempts have been made to plow it, but all failed. The surrounding fields are not stony. The near land is not even gravelly. The surface is now tufted with grass, but during dry seasons it becomes a parched desert. So smooth is it in places that buckwheat and other grains are threshed on it. No evidence could be seen by me of any Indian village in the vicinity.

Tradition says that this place had no timber on it at the time of the first settlement here by whites. What is it, and how shall I examine it?

Waynesburg, Pa.

A. J. WAYCHOFF.

To the Archaeologist:

The unwritten history of the aboriginal people of this region, gathered from the ancient shell heaps, cemeteries and mounds now being examined and investigated by our eminent scientists, is resulting in volumes of most valuable and instructive literature. The reports of these late explorations have given a wonderful impetus to thought and interest in that direction, and many who hitherto paid little, if any, attention to the study of American antiquities are now enthusiastic readers and investigators. I find myself eagerly taking note of shell heaps and mounds that a while ago but casually attracted my notice; and now it has become to me a source of pleasant recreation from business and a genial and instructive pastime.

Near the southern extremity of Lopez island, belonging to the Vancouver archipelago, is a small nook or cave, well protected from wind and storm by surrounding headlands and forests. The tide-flat there is bristling with shell fish of various kinds; the rocks adjoining are the home of myriads of sea-urchin and huge mussels; the water is teeming with the finest of fish, and the beach lined with drift-wood, all combining to make this spot an ideal Indian paradise. The shore line of this cave, above the tide-washed beach, for more than a hundred yards is heaped with burnt shells, interspersed with bones, ashes, and other camp refuse, accumulated here in the course of perhaps centuries of time; for it seems to have been a favorite village site of prehistoric Indians as well as of recent Indians, for ages past.

About a year ago, in the erection of a Salmon cannery, it became necessary to cut a ditch from the water line through this mass of decayed shells. In the process of this work two skeletons were exhumed from the shell heaps, one being that of an Indian, presumably; the other that of a dog. They had been buried there together and, judging from their appearance and state of decay, they were deposited here at a very remote period. The bones, with exception of portions of the skull, crumbled away on exposure to the air. The animal's skeleton was that of a medium-sized dog—possibly wolf—too large for a fox; and its cranium a little larger and nose more pointed than that of a common cur. I regret very much that I did not secure and preserve this interesting relic at the time; for it might, if submitted to the scrutiny of a comparative

anatomist, have shed some light on the domestication of the wolf by pre-Columbian Indians. When I returned to look for it I could nowhere find it. The human remains were probably of a female, small in stature, with the skull not artificially compressed, as is usually the case with skulls found here of later Indians. All appearances indicated conclusively that these bodies had been buried here long before contact of these natives with the whites. In enlarging the water ditch this past summer another human skeleton was found nearer the surface of this shell heap, in excellent preservation, and evidently a much later interment. It was buried here, no doubt, to save the labor of digging a grave in the surrounding stony soil. The skull of this skeleton, which I secured, was flattened in front, as are, or were, those of recent Flat-head Indians, who were quite numerous here half a century ago. It has been nearly that long ago that these Indians abandoned this barbarous custom; though I have, since my residence here, met several living specimens of these artificially flattened heads. The depressed forehead does not seem to injure the brain, and though it disfigures the individual somewhat, it is not very noticeable on account of the heavy shock of coarse hair that covers it. The shell heap mentioned is composed in the main of clam and mussel shells of species now found on this coast, all showing the effects of fire and great age; and the bones found intermingled with them are those also of existing species of animals and birds of this region, such as the deer, coon, bear, seal, water fowls, etc., with those of different fishes. Very few stone implements, and no vestige of pottery, have been found in this debris. I have nowhere heard of pottery found on these islands, and in consequence infer that the fictile art was unknown to the ancient inhabitants of this region. The finding, in this vicinity, of two copper cups and a thin, fish-shaped ornament of copper, would seem to indicate their knowledge of that metal; but these objects may have been of later introduction.

I made a casual examination of another shell heap, similar to this one, situated on the adjacent island of San Juan, but found nothing of additional interest. No skeletons were here discovered, but a few broken bones that may have been human remains. The composition of this refuse heap was similar to that on Lopez island, intermingled with identical animal bones, clam and cockle shells, and innumerable sea-urchin skeletons, all more or less burned and much decomposed. The great quantity of sea-urchin remains here leaves no doubt that this radiata, growing in these waters to a gigantic size, formed an important item of food of the early natives of these shores. Here too, in this old camp refuse, was a strange absence of pottery, and of implements or utensils of any sort. This may point to a very low cultural status: to a time before the evolution of the simplest mechanical arts among the primitive people who subsisted upon the products of these waters and forests. On the other hand, no evidences of cannibalism have been observed here. One thing seems quite certain—that the Indians of this region were never driven by hunger to taste human flesh, as perhaps no place on the face of the earth, except on some of the South Sea islands, has the Great Spirit provided his children so bounteously as on the islands and shores of Puget Sound. Here the Indian, in his canoe or ashore, found every tide-flat strewn with the choicest shell fish; the submerged rocks alive with a profusion of marine creatures of many species, and the beach piled with drift wood ready at hand for his fires. In their seasons, millions of water fowls nested on the small islands, and their eggs were in such quantities that they could be gathered by the canoe load. The waters at all times teeming with myriads of fish easily taken with the simplest devices; game animals, such as deer, were in the greatest abundance and easily approached, and the climate mild and invigorating. No skill or labor was requisite to sustain life but in manufacturing weapons and canoes; and a canoe once made would last a life time. So we must infer that up to the time of his contact with the white race, the Puget Sound Indian lived in plenty, indolence, ignorance and filth. Nature lavishly supplying all his simple wants, he had no incentive to either mental or physical exertion; and certainly not the least inducement for the practice of cannibalism.

I will be pleased to have those disagreeing with me on this subject express their views in the American Archaeologist, and hope that the assertions I have here made will have the effect of bringing to light any traces of cannibalism among the prehistoric Indians of the Northwest, if such evidences have been, or may hereafter be, discovered.

Friday Harbor, Washington.

WM. H. THACKER.

1262 New Hampshire Avenue,
Washington, D. C., Jan. 17, 1898.

Editor of the American Archaeologist:

In your issue of December, 1897, p. 334, you quote Professor Hough, of this city, as saying of a ruin which he has recently explored in Arizona: "It was known in the Zuni language as 'Kin Tiel,' meaning 'broad house.'" The name Kin Tiel, or, as I prefer to spell it, Kintyel, is not a Zuni but a Navaho name. In the latter language it signifies broad house, and is derived from kin, a Pueblo dwelling (not a Navaho hut), and tyel, broad. The Mexicans have rendered the name into Spanish as Pueblo Grande, and in this form it appears on several maps.

WASHINGTON MATTHEWS.

Editor of The American Archæologist:

I take no periodical that I read with more interest than I do The American Archæologist. I learn something new every month from it.

I have a great variety of very scarce stone objects, few ever heard of; but just at this writing, as I sat reading two articles in the January number on "Cup Stones," the thought struck me, What a diversity of opinions are promulgated as to the use of "cup stones!" Mr. M. C. Read, on page 14, has "a cart load of them," and all of rough sandstone, and thinks they may have been used to crack nuts upon.

Another writer thinks they may have been used as pivot supporters of rotating fire-sticks or boring drills. I have never known what they were used for. Either theory is as good as any advanced by the best writers and archæologists. But what I am getting to is a cup stone I just received from near Little Rock, Ark. It is the exact shape of a dice, cubical, and one cup on each side of the six sides, and the cube about two inches across every side. It is complete as made, and used, and is old and worn in appearance on every surface. So small a size and shape could not have been used for a nut-cracker. It might have been used to head a drill, but I doubt if any of us have solved the problem satisfactorily to anyone, where so many sizes and conditions are found. I have one cup stone 5x3x2 1-2 inches, of sandstone, with cups on the six surfaces—one side three large, deep conical depressions, opposite side two, ends one each, and being broken off at one corner, two sides cannot be determined whether two or three cups. I can count ten of these semi-spheres sunk in the six sides. There were probably twelve. The depressions are from one-half to seven-eighths inch deep. I have a cup stone of quartzite 5 1-2x5 1-2 inches, irregular shape, and 2 inches thick, smooth on all sides, three nice cup-holes on one side and two tiny depressions on the other side, in the middle of a wide hollow. No other depressions of a like character on the stone. This is from Missouri.

With the variety of sizes of the stones, and number and sizes of the depressions, one is puzzled, and when he fits a theory to a large cup stone he don't know what to do with his theory when he sees a small cup stone, like my dice-shaped one.

I throw out these suggestions and facts in comparison as a matter of interest and study. Truly yours,

L. W. STILWELL.

Deadwood, South Dakota.

Editor American Archæologist:

I know you have no space for personal controversies. Neither are your readers interested in them. I trust, however, you will allow me to make a brief reply to the trenchant criticism of my article in the October Antiquarian on the "Digger Indians of California." This criticism appears in the December number, over the name of H. C. Meredith.

I think if Mr. Meredith had read me with more care, his criticism would have been less poignant. I forgive him for his personal thrusts, as he said, "I write in haste." He might have seen that I wrote not of any Indians he is acquainted with. What I wrote is corroborated in all essentials by cotemporary writers.

The Indians I attempted to paint, were those of a rancharia near a mining camp called Cedarville, on the extreme southern line of El Dorado county. I have read my article over several times, and can find no correction to be made.

I said, "I don't think they made or used flint or stone arrow points." Others saw other bands that did make and use them; so my impression on that point may be erroneous; but not necessarily so as to those that came under my notice. As to the "copper color," I may be color blind. If not, they were of that hue. Mr. Meredith's "wavy haired" Indians must have some negro blood in their veins, which is not uncommon among the Mexicans and Indians along the lower coast of California. It was not of those that I wrote. I did not say they wore no ornaments. (Read the article again.)

In my paper, that has been so recklessly slashed by Mr. Meredith, I said, "This description does not fit in all respects the different tribes classed as Root Diggers; but is a fair, epitomized description of those that inhabit, or did inhabit, the lower mountain ranges or foothills of the central part of the State of California." In the face of this explanation he feels justified in presenting models of Indians in a part of the state two hundred miles away in the coast range, who have lived under different conditions, and have had forty-eight years of civilization to subdue their vile instincts and tame their savage nature.

His eulogistic description of the Indians of Mendocino county, if applied to the Indians I described, would be vastly more misleading than my description would be, were it applied to the Mendocino county Indians, of whom I have not written.

I have not misrepresented nor traduced those of the California Indians I know most about. I certainly have not eulogized them. I have written truthfully as I saw them; and cannot truthfully modify one syllable contained in that paper. I have written nothing in malice; naught have I extenuated. I have had no controversy with them,

but have failed to see any noble traits in those I described and cannot use white paint to portray a dark character.

I have been in favor of dropping the name of "Root Digger," not because it degraded the Indian, for it was the Indian that degraded the name, but because I thought it a misnomer (see my paper in the November Antiquarian). But as Mr. Meredith has proved that he is a root digger, I can see no reason for a change of appellation, for it would pervert history to do so.

I have not erected a standard and then painted an Indian to fit it, but have painted him truthfully, as he posed before me in El Dorado, Placer and Nevada counties, California, in 1849-50 and '51. If truth and accuracy are potent factors in history, Mr. Meredith's portraiture will not do for all the aboriginals of California.

FRANCIS C. PORTER.

Editor of The American Archæologist:

In the January number of The Archæologist you picture an image from Georgia. In the description, you say editorially, that no instance of a head with the hair confined in a net is known in the United States. On page 414 of the paper sent to you,* you will see (No. 43) a rather rude head, one half size, from Nagoochee, Georgia. This head I received from its finder about 1886. It is a dense red stone, and seems very old, as it is extremely weathered. Over the top of the head, from ear to ear, pass four lines parallel, which are covered by eight or ten lines at right angles, making a perfect net, whose squares are nearly equal. The back of the head is nearly flat, and either was never worked into much of a shape, or else has been worn off. It is difficult to say which. The head is pretty roughly made at best, and the right side of it is badly weathered and less perfect.

Bristol, Conn.

F. H. WILLIAMS.

* This will appear in a future number.

NOTES AND NEW DISCOVERIES.

About three-quarters of a mile from Wheelersburg and ten miles from Portsmouth is a wood of native timber, containing about fifteen or twenty acres. The Norfolk and Western railroad runs almost directly through the center of the tract and the waters of Pine creek form the southern and western boundaries. It is one of the finest natural groves in the country. The trees are mammoth in size, consisting of oak, poplar, sycamore, ash, hickory, cottonwood, elm and beech. The woodman's ax has been spared from time immemorial, due to the fact that the waters of Pine creek shut it off from the main body of the farm, and it was not needed for the purpose of cultivation. Its entire primitiveness or naturalness with its umbrageous shade makes it a "deep and dark and pathless" wood. For many years it has been a favorite resort for large picnic parties, known all the country round as "Pixley's Grove," owing to the fact that the farm of which the woods were a part belonged to a family named Pixley, since early in the present century. The "King of Poplars" of the Ohio valley stands in this grove, being fifteen feet in circumference and about sixty feet to the first branch, and whose topmost limbs are the first to salute the rising of the sun. Whilst the large trees are a never-failing source of wonder and delight to those who have visited the woods, there are few, perhaps, who know that the place contains another great mystery, made by hands (but whose hands?) in the long ago, before Columbus ever sailed the sea to unknown lands. In the northeast corner there is a perfect circle fifty yards in diameter to the inner portions of the circle, outside of which is now a depression or canal, fifteen feet wide and about one foot and a half deep; large oak trees two feet in diameter, with smaller trees of beech, etc., are standing in this canal; there are two gates if we may call them such, directly east and west, and within the large circle are slight mounds of elevation, fifteen feet in diameter and fifteen feet apart, the whole laid out with the skill of an engineer. What they were for and what they contain is not known, as no antiquarian yet delved beneath the surface to disclose their secrets. Dr. M. S. Pixley, of this city, who owns the grove, expects to keep it exclusively for picnic purposes, only adding what is necessary to a great popular resort without marring its native beauty. Some day he may take a notion to investigate the mysteries that lie buried in the northeast corner.

Heretofore Pixley's grove has been known chiefly as a charming place for holding picnics, but now it is about to figure in the annals of archaeology and forestry. Dr. Pixley has received a well-drawn map of Scioto county from the scientific department of the Ohio State Archaeological and Historical Society, with a request for him to mark upon the same the location of the rings, or earthworks, described as being in his grove, so they may be transferred to the State Archaeological map, on which they have already nearly 4000 earthworks located. Of course he will gladly comply with the request. This is not the first time these earthworks have attracted attention in high quarters. Ten years ago Prof. E. C. Lewis, of the Smithsonian Institute, visited Portsmouth and made an examination of the rings, making maps and taking notes. Said maps and notes are now part of the archives of the Smithsonian Institute at Washington.

EDITOR'S DEPARTMENT.

DR. J. F. SNYDER, EDITOR, - - - - - Virginia, Ills.

PROF. A. F. BERLIN, ASSOCIATE, - - - - - Allentown, Pa.

DR. CLARENCE LOVEBERRY, ASSOCIATE.

All communications for the Editor must be addressed to Dr. J. F. Snyder, Virginia, Cass Co., Ills.

In the symposium of opinions upon the question of the American Indian's culture status at the period of his discovery, published in this issue, is a brief but clear and positive declaration of Dr. C. C. Abbott's conclusions regarding the remains of glacial man in the drift gravels at Trenton. Other eminent scientists who have thoroughly investigated the evidences presented by these remains fully share Dr. Abbott's convictions. The whole matter in controversy seems to rest on the relative age of certain sand and gravel deposits in that locality, which Professor Hollick and other expert geologists believe to be the product of glacial forces. Stones found in those sand and gravel beds are conceded by all to have been fashioned by human agency. "The only controversy," says Professor Hollick, "which seems possible, is over the question of intrusion from above, and in view of the facts now advanced, the burden of proof should in fairness rest with those who hold this view."

Granting as true everything claimed by Dr. Abbott, and those who concur in his belief, what new or additional light do the admitted facts shed upon the problem of how America was first peopled? At no other point on this continent but in that limited area of the Delaware Valley, have undoubted traces of glacial man been yet discovered. Let us suppose, however, that similar evidences have been, or may in the future be, discovered elsewhere; this additional testimony will but strengthen the inference that the glacial or preglacial American was, in culture status, but little, if any, superior to some of the higher anthropoid apes of the old world; consequently, an autochthon, created, or evolved from some lower animal form in this region. His best achievements in implement making, of stone, found in the Trenton gravels and claimed to be of glacial age, prove him to have been as devoid of skill or "culture" as the drift men of Abbeville or St. Acheul. If, then, the glacial man of Trenton was not indigenous, it must be shown how a being so low in mental development as to be incapable of bringing to his aid in his life-preserving efforts no better or more effective mechanical devices than flint chips and splintered argillite, could have constructed boats, or the simplest rafts, and reached our shores by navigation; or could have surmounted the many natural obstacles encountered, and survived the perils and hardships of migration from Siberia to New Jersey.

As novices in the business, while conducting *The Antiquarian* last year, we were beguiled into reprinting two or three bare-faced "fakes" which a little reflection would have consigned to the waste basket. Such thoughtlessness was reprehensible, even in new beginners, and we felt much dejected about it. We feel better now; inasmuch as "misery loves company," we are greatly consoled by the discovery that we are not alone in blundering, but have exalted company, as is attested by the following in the *Scientific American* of January 1st:

"Twenty thousand years ago, according to the announcement of Professor Walters, the archaeologist, in the *New York Sun*, a terrible battle was fought on the Arkansas river, in the Indian Territory, between the mound builders and the Mayas, in which over 75,000 warriors bit the dust. He has reached this remark-

able conclusion on account of his investigations of a prehistoric burying ground in the Choctaw Indian country, which he has found to cover thirty acres and to contain fully 75,000 skeletons. His attention was first called to the remarkable number of skeletons to be found there several months ago, when the Kansas City, Pittsburg and Gulf railway was built through the Choctaw country. The workmen, in grading, brought to light tons of human bones and a remarkable number of implements of savage warfare, and Professor Walters set about to investigate the matter scientifically. To his amazement, he found a large tract literally underlaid with these relics of a forgotten race. The skulls were pierced with darts or arrow heads, one specimen containing thirteen moss agate arrow points. This proved that they died in battle. The skeletons were found buried in sand, and above the sand were two distinct strata formed in geological periods. These facts enabled Professor Walters to compute approximately the period when the battle occurred. He has compared the facts just learned with the result of seventeen years' previous study of the mound builders, and formed the theory that the battle was one of a long series of sanguinary encounters between that mysterious race and the Mayas, which latter race came from Central and South America and sought to gain possession of North America."

Professor Walters may be a real personage—a professional humorist, perhaps, fond of perpetrating jokes; but we are surprised that journals of the age, acumen and high character of the *New York Sun* and *Scientific American* will print such stuff and give it their endorsement of "conclusions from scientific investigations."

Professor Lewis W. Gunkel, of Dayton, Ohio, is—to borrow one of Mr. Lincoln's expressions—still "pegging away" at the Mayan hieroglyphics; having, in *The Anthropologist* for December, 1897, another monograph entitled "Analysis of the Deities of Mayan Inscriptions;" in which he notes the frequency of occurrence and various positions, in the several tablets and codices, of different glyphs representing the human face, or grotesque face masks. Just how much Professor Gunkel is accomplishing toward the discovery of the much coveted key to those mysterious characters we cannot say; but in any event, his persistent industry and intelligent labors in that study are highly commendable.

We very much regret having been compelled to defer to this number of our journal several very interesting papers that were already in type and should have appeared last month. The extraordinary number of illustrations in our January edition occupied so much space that no other course could be pursued. We beg our contributors to overlook this unavoidable delay, and will endeavor not to repeat it in future.

J. F. S.

A few words in reference to the Valentine collection, mentioned in the November number of the *Antiquarian* by the sculptor, Macdonald, as being one of the finest seen by him, may be of interest to my readers.

A number of years ago this collection was publicly exhibited in the city of Richmond, Va., and the authenticity of some of the objects in it was doubted at that time by the late Dr. Charles Rau, then the learned curator of the Prehistoric Antiquities in the Archaeological museum of the Smithsonian Institution at Washington, D. C.

As the writer does not at present know where in his large and ponderous archaeological library to look for Dr. Rau's exact statement, he can not here give it verbatim. Suffice it here to say that the charges then made by this trustworthy and reliable archaeologist were, at least to the writer's knowledge, never refuted.

Too often has the writer discovered in collections implements made by "Flint Jacks," who are plying their nefarious trade all over the country; nor does it seem that a stop can be put to them. This is attributable to the fact that so many collectors of prehistoric objects or implements keep themselves in ignorance of what they get into their hands. They are not archaeologists, but simply curiosity gatherers, aiming only at becoming possessed of that which pleases their eye. With this gentry it is simply possession, which to them is sufficient, hence are they often imposed upon, and when too late see their folly. A. F. B.

NOTES AND NEWS.

Mr. R. M. Stevenson, who resides a few miles west of Buena Vista, in the Ohio River Valley, made an interesting discovery last month of the skeleton of a human being, seventeen feet below the surface, while digging a cistern. It is in a good state of preservation, and is supposed to be the skeleton of a Mound Builder.

This has some bearing on a survey that is to be made in this section by the Ohio State Archaeological and Historical Society, to investigate the blue banks where their curator has discovered evidence of a village site twenty feet below the surface, along the bank of the Ohio River.

George S. Younglove, Waushara, Ohio, found a very curious specimen of the workmanship of the prehistoric races who inhabited this country, in the shape of a pipe. It is 23-4 inches high, standing on a base about 3 1-2 inches square. The bowl is nearly as large as the base, and on it are carved four faces, no two of which are alike.

John Stepper has located, near Massillon, Ohio, what he thinks is a prehistoric village site and burial ground.

"The land has been cultivated for years," he said, "and hundreds of stone and hematite implements, such as double-bitted axes, banner stones and hammers, have been found, besides fragments of sandstone pottery and hundreds of flint arrow heads. One of the finest specimens found is an effigy pipe made of some unknown black material. The village is located at the fork of Sugar Creek and Fox Run. On the north side of Fox Run is what I think is the cemetery, for there a number of limestone graves have been found."

Mr. Stepper has about 1500 good specimens which were found on his farm.

The Government of India owns all the ancient mounds in India, and at present has several archaeological surveys at work upon them. They are trying to keep all the specimens for their own museums and preserve the earthworks as near their original shape as possible.

While digging a drainage ditch along a country road, near Dixon, California, a skeleton was unearthed at a depth of six feet. It was covered with sand and rock and seemed to show that great care had been exercised upon it in burial. It was very likely the skeleton of an Indian.

A man by the name of Dunnigan, from Woodland, California, while field hunting on an old Indian village site, found a pestle weighing 25 pounds.

John Hammer, of Wrangleton, California, while removing a stump of a red-wood, which measured fourteen feet in diameter, found a pestle weighing three pounds and measuring seven inches in length, just below the center among the roots. As the stump was sound throughout, the question is: How did the pestle get there? And as the stump from its size, represents a growth of thousands of years, How long had the pestle lain there?

Editor of American Archæologist:

A correspondent on page 308 of the November Antiquarian, asks for name of author or title of poem. Name is "The Prairies"; author is William Cullen Bryant. I first saw it in a Reader adopted in the schools in 1858.

GEO. L. BIRD.

Brockton, Mass.: 543 North Montello Street.

Interesting Discoveries in South Brooklyn.

An old cemetery, older than any other known cemetery within the limits of Greater New York, was discovered near Ryder's Pond, at the head of Garrison's Creek, not far from Sheepshead Bay, recently, by men who were cutting Avenue U through to Ryder's Pond. It was an Indian cemetery, and must have been near oyster beds that doubtless had their existence in Dead Horse Inlet or its vicinity.

The men under Contractor Jenkins got to about ninety yards from the pond when the pick of an Italian laborer went rattling into a bed of oyster shells. These were about nine inches from the surface. The shells extended about five feet in one direction and four in another. They were about three feet and nine inches deep. The shells had been laid in with the outer side up and piled in as one would pack books of different sizes in a box.

After a while the diggers got down to sand again. This sand was about four feet and a half from the surface. One of the teamsters, waiting for his wagon to be loaded, saw a strange large shell, as he supposed, tossed up by a shovel on his wagon. This man was William Considin, who lives in Ryder's lane near by. Considin picked the supposed shell up, and knocked a little black mould off of it, and then recognized that it was bone. Finally he made out that it was the side of a man's skull, including an eye aperture. This bone was carried to the dump with the rest of the load.

The teamster found also some bits of pottery as big as one's hand in some cases. These were "smooth as glass on one side and all rough on the other. The rough side had a lot of marks all over it just as if they'd tried to draw birds or animals on it. Save them things? Naw, they was busted I tell you, and weren't any good. Yes, they went to the dump, too, besides some other bones about as big as a broom handle, and some ribs, too."

Two more of these shell-filled holes were found on Friday, and five or six on Saturday. The teamsters, who did no loading, amused themselves by picking out some of the larger bones, and after looking them over, tossed them into the wagons to be carried down to the dump, where the roadway had to be raised instead of lowered. In all, at least twelve, and probably fifteen, of these graves were cut into. As there were so many graves, the men couldn't help noticing some peculiarities of construction.

First of all, at the surface were a lot of shells scattered and broken by ploughs. These broken shells were mixed with nine inches or more of black soil. Then came the mass of shells. There was a different kind of shell, called the periwinkle, there, too. In some of the graves there was one only, at least the careless onlookers found no more, and in the others two.

The smaller of the shells, where there were two, was about eighteen inches from the surface, and a foot beneath was a bigger periwinkle shell. In a grave which was dug into by a reporter the small periwinkle shell was three inches long, and a foot lower was found another ten inches long.

Under the oyster shells was found black mould mixed with fragments of bone. The larger periwinkle shell may have been placed over the face of the dead person. The mould at the bottom of the gravel is mixed with red sand, and below it is the gray beach sand.

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PREHISTORIC REMAINS OF THE TUNXIS VALLEY.*

Illustrated With Photographs from Original Objects.

By Frederick H. Williams, M. D.

First Paper.

To the majority of men the Aborigine of Connecticut is less real than a vanished dream. The antiquarian finds him in musty deeds or forgotten laws. The etymologist traces him in the names of the mountains, brooks or vales that

*This interesting report was written by Dr. Frederick H. Williams, of Bristol, Conn., for general readers of The Connecticut Quarterly, published at Hartford; and presents some new points of value to all archaeologists. For instance, his triangular scrapers and arrow-heads; the pottery with textile marks on both surfaces; the differentiation of so-called "banner stones" as regards their oval and circular perforations; implements

he loved, while here and there the thoughtless turn up his discarded arrows or his mouldering bones. But his wigwam has vanished with his council fires, the echo of his war-whoop is lost in the valleys and time has levelled the earth over his forgotten graves. Yet along with the disused tomahawk and the shaftless spear, the humbler implements of his domestic life everywhere betray to the patient seeker his ancient habitations. Sallust believed that the deeds of the ancient Romans were as illustrious as those whose praises were sung by the bards of Greece, but that they were so occupied with those deeds that none thought to record them. So we may believe that some among the early settlers of Connecticut were curious enough to have studied the domestic tools of the savage; but if so, they forgot to record much of their knowledge. Besides, we should remember that the metal tools of the white man were so vastly superior to the stone implements of the Indian as to cause an almost immediate disuse of the latter where metal could be obtained. Thus it happened that the students of ethnology, when attention became turned towards unravelling the domestic life of ancient savage man, some forty years ago, found it nearly a sealed book. Yet piece by piece the relics of ancient man have been collected, compared with each other and with what may now be found among existing savages. No longer held as mere curios to tickle a momentary fancy, these implements and ornaments have been used as the alphabets of a forgotten tongue, until now one can not only largely reconstruct the life of this vanished man, but even, entetizing his departed mentality, ask the reason of many of his ways and deeds.

It must, however, be the scope of this article to deal only with such visible remains as have come down to us from the pre-Columbian owners of the Tuxis Valley. Therefore very many interesting topics must be left untouched.

POTTERY.

It has been said that, "articles of fictile ware are the most fragile and yet the most enduring of human monuments."* But owing to some cause, doubtless the alternating freezing and thawing in a country subject to heavy rainfall and shallow burials conjoined, perfect pottery is very rare in this valley. Small sherds are found, however, upon nearly all old village sites. They appear to



A POTTERY PIPE.

have been well made and are often of a fine red color, but frequently blackened by fire and smoke. The clay is usually mixed with micaceous sands although some appears to have been mixed with ashes, and other sherds seem made of nearly homogenous clays. Externally, the pottery is usually ornamented, sometimes with parallel lines, or with oblique detached lines, or series of punctures. Again we frequently find a net work of various patterns impressed upon it. In the American Museum of New York may be seen a very fine jar found near Windsor, belonging to the Terry collection. We know of no other perfect pottery from this section. In Fig. 1 we illustrate a very rare pottery pipe, and tube which may or may not have been its stem, found in the bank of the Connecticut River, near the mouth of the Farmington, in 1884. Fig. 2 shows typical pottery sherds from Farmington, Plainville and Southington. A curious study is being developed by taking impressions in wax of the ornamental

of trap rock for working steatite, etc., etc. To the doctor's kindness and the courtesy of Mr. George C. Atwell, Editor of the Quarterly, we are indebted for permission to reprint the paper in our pages.

* Jones' Antiquities of the Southern Indians, p. 441.

lines on both faces of pottery jars. One can thus often reconstruct, not only the forms of the matting or basketry upon which they were molded, but at times ascertain the nature of the fibres of which the netting or mats were made.

"It was a common practice among the aborigines to employ woven fabrics in the construction and ornamentation of earthenware. Impressions were thus left on the clay, and by baking they were rendered as lasting as if engraved on stone. From no other source do we obtain so wide a range of fabrics."† Fibre lines will be noticed upon the sherds illustrated in Fig. 2.* From this we perceive how valuable any particular pot-sherd may be to science, and why each fragment should be carefully saved and shown to the nearest general collection.

STEATITE

The working of soapstone is one of the oldest organized industries of the Tunxis Valley. In Bristol, Nepaug and Harwinton ledges have been found



FIG. 2.
FRAGMENTS OF POTTERY



SOAPSTONE DISHES.

† Holmes' Prehistoric Textile Art, 13th Annual Report Bureau Ethnology.

* Since articles were illustrated for these papers the writer has read Prof. O. T.

where the prehistoric Indian mined and roughly formed his pots and bowls. In 1892 a beautiful exposure of an aboriginal quarry was uncovered in Bristol, with many bowls in various stages of finish still attached to the ledge. For the Indian first marked out his dish and finished shaping its bottom and side before detaching it from the rock. This separation, owing to the general irregularity of cleavage and frequent faults in the steatite, was often disastrous, as the many broken rejects about the quarry show. When the bowl was once freed from the ledge it seems to have been taken to some village site and slowly finished, being generally smoothly polished, both within and without. The frontispiece shows the Bristol quarry from a photograph made by the Peabody Museum, and shown at the Columbian Exhibition at Chicago.

Fig. 3, one-third natural size, illustrates a very fine two-handled bowl, found some thirty years ago, three feet deep in a sand bank at Plainville; few



IMPLEMENTS FOR WORKING STEATITE.

prettier bowls exist in the East. Fig. 4 shows a small drinking bowl from East Bristol. Fig. 5, one-third natural size, is a cooking dish from Burlington, black with grease and smoke. There is also a banner stone in Terryville, and a unique, but unfortunately imperfect, bird amulet belongs to the writer. Imperfect dishes and fragments are quite numerous. Some are found showing holes where they have been mended. Fig. 6.

Mason's "Origin of Inventions." On page 58, we read, speaking of clay jars, "but ninety and nine were made in nets, or baskets, or bags. In such examples the markings are on the outside." In fig. 2a, is shown the inside face of a potsherd from Plainville, which is exactly similarly ornamented on both outside and inside faces.

The trap talus, extending along the old valley from Southington north to the Massachusetts line, furnished the angular fragments from which were made the implements used in working soapstone. In comparing a collection of the implements with a collection of unworked stones it would seem as though nature had placed the models ready to the hand of man. The stones flake off into thin narrow pieces, often with such acute points that only a very little change is needed to produce the required tool. These tools are found on every village site from Southington to Congamond Lake in Massachusetts. And some have been found at Nepaug which retained the lustre of the powdered steatite. These implements were of four general types. Those rudely blocked out as axes and grooved, for helving. Of these some cut straight with the edge as our axes, some cut towards one like an adze, while others were pointed and acted more like a pick-axe. Examples of each are given, Figs. 7, 8, 9. The second type is the most generally distributed; they are found from four to twelve inches long and all agree in having the worked edge beveled off to the left. They do not form very sharp points, but nearly all show the polish of long use. If a number are placed in a row, the general trend of the bevel will all be alike. Fig. 10.

The third type are smaller and more robust, rudely wedge shape except that the point is always acute. The blunt end is roughly shaped to fit the hand and take pressure from its palm. They seem to have been used as picks and gouges, being akin to the modern tool of the wood graver; Figs. 11, 12, 13. They may also have been driven into the rock after the manner of wedges.

The fourth type resembles the third on its working point, but they are made of thin flakes of stone and often have a cutting point on both ends; Fig. 14. It is not contended that these tools were used exclusively for working soapstone, but that soapstone was worked with them.

In attempting a description of the general remains of the Stone Age Art of the Tuxis Valley, a few explanatory remarks seem justifiable. European Archaeologists divide their specimens into Paleolithic or ancient stone age, all the objects of which are chipped, and Neolithic, or newer stone age, in which many objects are polished. No such classification can be made applicable to American Archaeology.* The writer would rather divide his description into domestic tools, largely used by women; implements of warfare and chase; religious or ceremonial, and ornamental. The prehistoric Indian himself may never have conceived that he possessed an art. Nature could never have seemed to him the kind and lavish mother that she does to us today. To him she was the stern and miserly controller of his destinies, from whom he only wrested, through strenuous and unceasing toil, those meagre gifts that never gave repletion. Therefore, as one who strove hand to hand with nature on all sides, he walked closer to her nakedness than we. But his companionship was as that of a child who cannot wander far from the maternal font of being. He knew better than we how to read the external features of her presence; such secrets as she vouchsafed to him the knowledge, he learned with ready wit. But, unlike us of today, never having penetrated within the arcana of her mysteries, he could not stand aloof from her as we may and make of those mysteries the ready slaves to work his will.

* As far as can be seen, the separation of a paleolithic from a later Indian tool in America is a question of its geological location. The writer inclines to accept the evidences of glacial man in America.

MOUNDS IN PIKE COUNTY, OHIO.

Prior to the advent of the whites, Pike county was an ideal dwelling place for a people in the stage of advancement reached by the American Indian. Lying in the extreme southern portion of Ohio, it is not subject to sudden or hurtful changes of climate. Across the central part flows the beautiful Scioto, with frequent tributaries on either side. The rich alluvial soil of the lowlands yielded bountiful returns for such labor as was expended upon it; the wild, almost mountainous, country stretching away mile after mile to the east and west, harbored and protected a plentiful supply of every sort of game indigenous to this region. The modern Oklahoma "land grabber" is not quicker to realize the agricultural possibilities of a piece of ground than was his dusky predecessor; and so we find all along the fertile bottom lands of the Scioto and on the hilltops overlooking its broad valley, abundant evidence of the Mound Builder's partiality for this country, in which all the wants of primitive man were amply provided for. Here are enclosures, circular, square, and of eccentric form; pathways dug in the river bank to give easy access from their villages to the water; deep pits in the earth whose purpose is still a mystery; and mounds by the dozen.

At different times within the past few years I have excavated more or less thoroughly about thirty of these mounds, of which no connected account of the work has as yet been published. As such a report may be of interest to archaeologists by reason of the diversity of structure observed within a limited area, it is here presented. Some of the mounds were absolutely barren of contents, giving no clue that would aid in determining the purpose for which they were built; some others contained only fragmentary bones unaccompanied by any relics, and apparently pertaining to a rather hasty or careless burial. Such as these will receive no mention. The field notes will be followed as closely and as concisely as is consistent with clearness of statement. In every case the central point of the mound was ascertained as nearly as possible, and all horizontal measurements calculated from it; vertical measurements are from the level of the original surface earth. Frequently, however, the highest point of the structure was several feet to one side of what was clearly intended to be the principal feature of the tumulus. This is often due in some measure to erosion or cultivation, but more frequently to the fact that the builders, probably through ignorance or carelessness, made it so.

The most northern mound opened stood close to the north line of the corporation of Waverly, the county seat; this will be called No. 1, and the others will be numbered in the order of their position from here to the south line of the county. There are several mounds north of the one first described, but the owners of the land on which they stand would not allow them to be opened.

Mound No. 1.—This measured eighty feet in diameter at the base, and thirteen feet high above the surrounding surface. A trench ten feet in width was carried in from the south side. The structure was composed of very hard-packed, dry sand, with a slight mixture of clay, brought from a low ridge that lay a few rods to the north of the mound. All below the upper two feet could be loosened only with a heavy pick wielded by stout muscles. This earth had been piled directly on the original surface level, whose characteristic grayish color, due to the decay of old sod and roots, extended from four to six inches downward and rested comfortably upon the yellow sandy subsoil, just as in the field around.

About thirty feet from the center began a number of streaks of sand, darker and much harder than that in which they occurred; they were very tortuous,

though the general direction was horizontal. They were nowhere over an inch in thickness, and as the center was approached become more and more lenticular in outline, running around or enclosing the lighter sand in small patches. Evidently they were due to segregation of certain components of the sand, forming, after the latter had been deposited, around the little masses or flattened piles where each laborer had cast his basket-load of earth. These "dumps" or lenticular masses are very common in large mounds, and are never of larger size than an ordinary man can easily carry. At twenty-four feet out it seemed that a trench or gutter had been dug to a depth of sixteen inches long before the mound was begun; for the dumped earth curved down into it, resuming the usual level on the other side. Immediately within this, or twenty feet from the center, were found five holes nearly in a straight line across the trench. Measuring from the western one, which was partially under the west wall, the distance to the center of the others was three and one-half, five, eight and nine and one-half feet. They were from twelve to sixteen inches deep and about eight inches across. A few fragments of bone were in the western one, some charcoal in the east and middle ones; nothing in the others except loose, dark earth. These holes are of frequent occurrence in the mounds of the Scioto valley; their object is problematical.

At eighteen feet out, ten feet from the bottom, was a hole with cavities branching out from it, the largest reaching toward the west or down the slope from the main hole. Plainly this was the remains of a stump and its roots and proves that the work was stopped at this point for several years, as the earth was solid above and the hole was such as would be left by a tree five or six inches in diameter.

At sixteen feet out, on the bottom, were two extended skeletons, as close together as they would lie, with heads southwest. The earth about them was a deep black in places, as if from decayed flesh; but most of the larger bones, so far as they could be examined, were covered with a dull-red powder which took on a waxy appearance when worked up with a knife blade upon a hard surface. It may have been powdered hematite; but none of it was observed in the earth surrounding the bones—possibly because it was not looked for. The skeletons were about six feet two inches and five feet ten inches in length, but the bones of the head and feet were so displaced that exact measurement was impossible.

At fifteen feet out, on the west side of the trench, began a streak resting on the undisturbed surface. It was somewhat darker than the earth immediately above or below it, and contained some small fragments of charcoal. Two feet from the edge of this began a layer of clean, yellow, sandy earth, evidently the subsoil of the field. Within a foot this increased to a thickness of five inches, gradually running across the face of the trench with a thickness of three to five inches to the east side, at which it ceased. At ten feet out, near the middle of the trench, and under this yellow sand, the earth was reddened over a space of eighteen inches to the depth of an inch, probably due to a fire which was made here before the mound was commenced.

At twelve feet from the center a hole had been dug to a depth of five feet. It was almost uniform in diameter—about seven inches—to the bottom, and terminated in a blunt point as if due to a post that had been roughly burned or cut off. It was entirely filled with loose, dark earth, resembling garden mold. It required great patience on the part of the aboriginal excavator, with a pointed stick or piece of antler as his only tool, to dig such a hole in ground as compact as the surface of a traveled road.

On the west side of the trench, ten feet out, was a little pile of burned bones with some charcoal; this lay near the edge of a fire-bed, having a regular elliptical outline. The latter extended thirteen feet northwestward from the east margin of the trench, with a maximum breadth of five feet. Beneath this, at eight feet out and three feet from the east face, was a hole about 8x10 inches in its two diameters and twenty inches deep, filled with a very loose, dark earth in which were two or three small fragments of charcoal. A foot nearer the center and three feet west from this hole was another ten inches in diameter and sixteen inches deep, the sides and bottom rough as if it had been gouged out with a stick or horn. It was filled with clean, white ashes, mixed with some charcoal, and packed in so hard as to be difficult to remove with a trowel.

Five feet out appeared a loose, black earth, evidently the mucky soil from the creek bottom-land near by. It was piled as steep as such earth could be made to lie, to the height of five and a half feet, and the upper surface covered with a thin layer of charcoal. It proved to be the covering of a grave constructed in the following manner:

A hole measuring ten feet east and west by nearly six feet north and south, rectangular in form, except that the corners were somewhat rounded, had been dug to a depth of about eighteen inches. The bottom was irregular, as though excavated with rude tools, and was a little deeper at the middle than toward the sides; the edges were not vertical, but slanted inward a little. Lying close to the north side of this was a man's skeleton, five feet nine inches long, extended on the back, head west, left hand lying on the pelvis, right arm bent and lying across the stomach. The teeth were very little worn; five or six of them were slightly touched by decay, but otherwise they were solid, clean and white. Contrary to general impression, it is rare to find a full set of sound teeth in the jaws of a "mound builder," and almost invariably they are much discolored. At his right side and in the middle of the grave, was the skeleton, five feet four inches in length, of a woman lying extended on the back, with the left hand under the pelvis of the other. All the teeth were much worn, some of them entirely below the enamel. The two lower, middle incisors were nearly cut in two at the neck; they looked as if some sort of fine cutting instrument had been forced between them and sawed back and forth horizontally until only a thin remnant of enamel at the outer margins held the upper and lower parts together. The skulls differed greatly in size and shape; both were in an excellent state of preservation, owing to the fact that they were completely imbedded in the above-mentioned bed of ashes, which extended across the upper portions of the skeletons to the northwest corner of the grave, and was thick enough to cover the skulls. Some fragments of bone and a piece of black flint knife were found in them. A lining of wood had been placed around the margin of the grave; what remained of it looked more like ashes than like wood. The bottom of the grave was covered with a layer of ashes; above this was a single thickness of bark on which the bodies were placed, without any covering or protection from the black earth, which had been piled directly on them and extended a few inches beyond the grave on every side. This mound had then been built over and around this. There was no particular arrangement of material in the tumulus; it looked more as if various parties had worked as best suited their convenience, throwing the earth wherever they wished and gradually running the different masses into one another until the work was completed.

Two and a half feet from the bottom, at the center, was a decayed skull; a few fragments of bone were found at intervals to the east of it, as if a body had been interred here. No relics of any sort were found except a copper bracelet, which had apparently been lost by one of the workers when the mound was about half finished.

No. 2.—This had been cultivated for many years, having now a diameter of ninety and a height of three feet. At various places below its bottom were holes filled with loose, dark earth, some of them dug, others due to the decay of roots and stumps antedating the mound. Near the center were two skeletons of medium size, lying a foot apart, with heads toward the east. The left arm of the one to the south lay on a thin stratum of ashes and bone, much burned and cemented together until almost as hard as stone; it covered a space of one by two feet. The feet of the skeleton lay on hard-burned, undisturbed earth, from which the ashes had been carefully removed. The lower jaw was narrow, with a prominent chin and the teeth much crowded; the upper jaw was decidedly prognathous. The head of the second skeleton was two feet farther east than that of the first, and rested on a fire-bed; near its skull were found fragments of bones of a very young child. The fire-beds at the head and feet of these two were each about four feet across; another, north of them, was six feet across, and the earth beneath it was burned red to a depth of four inches; none of them was regular in shape. On these bodies and ash beds, over a space of some fourteen feet in diameter, earth had been deposited to the thickness of a foot at the center, running to an edge all around; above this was a thin layer of charcoal with its margin resting on the original surface, and over this the mound had been built.

No. 3.—This was originally more than twenty feet high; but cultivation has reduced it to ten feet, with a diameter of about 100 feet. A trench six feet wide, increasing to ten feet towards the center, was run in from the southeast side. At nineteen feet out began a layer of ashes and burned earth, remains of a fire that had been made on the natural surface of the ground. It extended in every direction beyond the area excavated. Under the outer edge was a hole sixteen inches deep, filled with loose dirt. Three feet northwest of this hole was another twenty-seven inches deep, the lower nine inches containing a mixture of ashes and loose earth, while the upper portion was empty. Two feet west of the second was a third, thirty inches deep, filled with loose earth and charcoal; near the bottom were two angular fragments of burnt rock. Three and a half feet north of the third hole was a fourth; a foot north of this was a fifth; southwest from the last was a sixth. Each of these was about thirty inches in depth, and all were filled with loose, black earth containing small quantities of charcoal, ashes, and traces of rotten wood or bone. In one were two valves of mussel shells of different species, the larger broken as if in opening. All of these holes were about eight inches in diameter.

Ten feet out began a fire-bed not over four feet across at any part; it lay partially under the south wall. The ashes were three and a half inches thick and the earth was burned a bright red to a depth of four inches. The fire had burned for a considerable period and the ashes were scraped away from time to time, reaching, on unburned earth, beyond the north side of the trench and three feet past the center of the mound. On the top of the ashes, generally with a few inches of earth intervening, was a very thin layer of decayed wood or bark. The unconsumed end of a poplar or cottonwood log six inches through, extended a foot from the west edge of the fire-bed.

In the middle of the trench, two feet from center, was a hole eight inches in diameter and thirty inches deep; and three feet west of it one a foot across and thirty-two inches deep. The latter contained a number of fragments of bone, one of which, a broad flat piece, had been dressed to a triangular shape with the wide end somewhat rounded. Lying on the ash-bed above these holes and reaching three or four feet beyond them to the west and north, was a mass of large poles which had been thrown in a pile, the ends of the longer ones projecting somewhat from the edge of the mass. It was composed of white walnut, poplar and cottonwood, and the debris was in some places more than a foot thick.

Two feet past the center, lying on the edge of the ash bed, was the skeleton of a young adult, about six feet long, extended on the back with the head west, all the bones broken and crushed by the pressure of the superincumbent earth. Only twenty-two teeth remained, and of these thirteen were more or less decayed. Near the feet was the edge of an irregular fire-bed three or four feet across. The skeleton was covered with several layers of bark.

Under the right femur was the largest hole discovered. It was three feet deep and contained a number of pieces of ribs and other bones from animals; also fragments of charcoal as large as a hickory nut. The purpose for which these holes were intended is not known. There was nothing to indicate they were post holes; nothing was concealed in them. The thin, superficial streak of ashes and charcoal passed over them without a break, so they evidently had no connection with the mound. It is possible they were caches in or near a wigwam which formerly stood at or on the site of the mound.

No. 4.—This is now only three and one-half feet high and from eighty to one hundred feet in diameter, being much disturbed by farming over it. A trench eight feet wide, run in from the northwest side, showed it to be composed of sand, clay, soil and muck. About fourteen feet out were fragments of a skeleton, imbedded in black earth filling an excavation that reached through the natural soil to the underlying gravel. At five and one-half feet from center, with the skull in the edge of a bed of ashes which had been raked from a fire-bed near the center, and the rest of the body extended on a layer of muck that formed the bottom of the mound, was a skeleton of peculiar form. It was not over five feet long, but the bones were very thick and the processes for attachment of the muscles were extraordinary in their development. The skull was nearly half an inch thick and of unusual size, mostly back of the ears, though the forehead was full and high. The teeth were large, hard, and but little worn. One other skeleton was found at the center, two and a half feet above the bottom, extended, head toward the west.

No. 5.—This mound was sixteen feet high and sixty-five feet in diameter. It was begun with a central core eight feet high, of black earth from the Beaver creek bottoms near by, and completed with the loam of the field in which it stands. A trench ten feet wide was carried in from the south side. Within two feet of the summit were traces of five intrusive burials, one of them of a child. One other skeleton was found ten feet out, six feet above the surface level with the head toward the west. Four feet below this were part of the shaft of a femur, a bone of the hand or foot, and two small fragments of skull. Five feet from these, on the same level, was a large piece of skull. From the arrangement of a layer of ashes and wood below these fragments and a thin layer of wood above, which could be traced for three or four feet in every direction, it was evident that they were all parts of a single interment; but nothing else was found with or near them, although these fragments looked fresh and solid as though lately denuded of flesh. East of the center, on the original surface, was a mass of ashes about four inches thick on a bed of burned earth six or seven feet across. It contained burnt bones and mussel shells, but no charcoal; and was continuous towards the west with a thin layer of ashes, over which was a layer of charcoal, both not exceeding half an inch in thickness. Above the latter was a layer of decayed wood in which were pieces of oak, walnut and mulberry, running to the north and west of center. About six feet north of this ash-bed was a similar one; lying on the ground between the two, with its burnt ends in either, was an oak log ten inches thick. Decayed wood and bark with a thickness of several inches, spread over an area of at least ten feet in diameter to the westward of the second ash-bed. In fact, all through the black core of the mound were masses of such wood and bark, apparently pertaining to mortuary exercises, but so confused that nothing could be determined in regard to their arrangement.

Five or six feet west of the center was a bed of ashes three inches thick and three to four feet across, on earth burned hard and red. In these ashes were many small fragments of bone, some burnt, others showing no trace of heat. Among them was part of a human femur, not over four inches long, one end of which was slightly burnt while the other end looked remarkably fresh, as if the flesh had only lately been removed from it. After the fire had died down three little packages of copper beads, fifty-four in all, were thrown into the ashes. The leather string was still in them, while the inner wrapping of cloth and the outer wrapping of buckskin around them were not even marked by smoke or heat. Over the ashes was a thin sprinkling of powdered hematite.

The next three in order have been much lowered by cultivation.

No. 6.—This is composed entirely of yellowish clay. Two feet west of center, two and a half feet above the bottom, was a mass of burned bone in small fragments; it was about six inches thick at the middle and less than two feet across at any part. In it were two copper rods about half the size of a slate pencil, a perforated gorget of striped slate, and another of black shale, unperforated. A similar bone-bed was about six feet east of the center, two feet above the bottom; it contained no relics of any sort. At about the same level, four feet west of the center, were traces of an adult skeleton, with the head to the east; only a few soft fragments of bone remained.

No. 7.—In the construction of this mound a hole had been dug through the three feet of soil to the underlying gravel. Extended on the back, on this gravel, head northeast, was a skeleton six feet four inches in length, the right hand on the neck, the left hand lying across the pelvis. At the right elbow was one valve of a mussel shell; on the breast were two bear's tusks with the root end ground off at a sharp angle. Among the lumbar vertebrae were four perforated pearls and several molar teeth of a bear with the roots more or less ground, and two molars of some very small animal; west of his feet was a small mussel shell with both valves perforated. Lying at the left side of this skeleton were the remains of a child three or four years old; on its breast was a small slate gorget. Over the bodies was placed the clay removed in the excavation; on this was spread out the gravel removed from below the clay, thus reversing the natural order. Over the gravel the mound, of yellowish clay, was erected.

No. 8.—A trench thirteen feet wide was carried in from the south side. At eleven feet out was a hole five inches in diameter, containing a very little charcoal, dug down into the underlying gravel. Five feet north of this was another, eight inches in diameter and a foot deep. Six feet east of center, three feet up, was part of the vertex of a skull with a small hole drilled through; at the same distance southeast of the center a complete skull of regular Indian type. If any other bones had ever been here, all traces of them had disappeared. Three feet south of the center was a very symmetrical hole, one foot in diameter and two feet deep, filled with soil. Five feet west of center was a hole three feet deep and a foot across, the lower two feet filled with ashes and charcoal, the upper foot with earth. This lay within and close to the edge of a fire-bed four or five feet in diameter. Over the north and west portion of this burned earth was a considerable mass of ashes; the south side was covered with soil, which, near the center of the fire-bed, merged into the ashes. Over the whole mass was spread a layer of charcoal, which in turn was covered by the earth composing the mound. When these ashes were examined they were found to contain numerous fragments of bones, nearly destroyed by heat. A few of them seemed to be animal bones, but most of them were human. Among them were two fine flint knives, fragments of two pipes, and some smooth, rounded pebbles as large as a duck's egg—all much burned. There was here plain evidence that either a corpse was cremated or a living person burned at the stake. The hole showed

marks of fire clear to the bottom, and there can be no doubt that a large post which stood here was consumed by fire. The only thing in favor of the idea of cremation is the presence of the pipe fragments; the knives and the stones may have been used to add to the sufferings of a victim, but would have no place if a corpse was to be destroyed. On the other hand, if the intention was to inflict torture, it would seem improbable that a mound would be erected to commemorate the event. Still, it is not safe to judge barbarian motives by civilized standards.

No. 9.—This is on the summit of one of the first, or lowest ranges of hills bordering on the Scioto. It measured eighty feet in diameter and three feet high. A six-foot trench was run through it from north to south.

For twenty-five feet each way from the center—and presumably for the same distance to the east and west—the surface earth was burned red to a depth of two or three inches. It rested on a layer of ashes, and above this was a stratum of charcoal varying from half an inch to three inches in thickness. On the charcoal rocks were piled, many of them burned and smoked as though thrown on while the fire was still briskly burning. The spaces between the stones were tightly filled with gray (surface) earth mixed with charcoal; it seemed to have been gathered up from a place where weeds and trash had been burned off. Like all the earth in the mound, it was as compact and solid as frozen ground. Some of the stones weighed more than 150 pounds. The central core of the mound, over an area of five feet every way from the center, was a tough mass about three feet in depth, of mingled yellow and white clay, surface earth, a little charcoal and ashes, and occasionally a rock. In three or four places holes which had been dug down into the clay subsoil were filled with this mixture. No bones or other remains were found, except a few pieces of charred cloth preserved between flat rocks, which kept the water from them.

No. 10.—This stood on the same hill as the last, but just below the top of the slope. It was connected with the hilltop by a causeway thirty feet long, formed by filling the intervening depression with large rocks thrown in at random and leveling the upper surface with a pavement of small stones.

The mound was eighty feet in diameter at the base. A ten-foot trench was carried through the north side. The line of the original surface was easily followed along the gray earth formed by the decomposing sod growing here when the mound began. At twenty-five feet out large rocks appeared and increased in numbers until within eight feet of the center, where they were piled to a height of four feet. Under this point, on the sod line, was the edge of a layer of rotten wood covered with ashes, which continued sixteen feet to the southward and under the walls of the trench on each side. On this, covering a space ten feet from north to south and from six to seven feet east and west, was a mass of broken and decayed human bones lying in the utmost confusion as if they had been carelessly gathered up at some other place, carried here, and thrown in promiscuously. In some places it was fully six inches thick. The only appearance of regularity anywhere was at the center of the mass, where an effort had been made, without much success, to arrange the bones of one skeleton in proper order; and at one edge, where a corpse was laid, crowded into the smallest compass possible. The earth in contact with it was much blacker than any other observed. Enough earth was thrown on the bones to cover them; over this was placed a layer of wood or bark, of which traces still remained. On this the rocks were thrown, reaching six feet past the south edge of the ashes, and over all the mound was built to a height of eight feet.

Three other interesting mounds in this county, more recently excavated, are fully described in the reports of the Philadelphia Academy of Science for 1894 and 1895. One of them contained the largest grave ever discovered.

Chillicothe, Ohio.

GERARD FOWKE.

NOTES ON DELAWARE INDIAN VILLAGE SITES.

Pechequelin or Pechotwoollenk.

(Sixth Paper.)

My readers who have patiently followed me thus far may perhaps ask why I have left the more interesting part of this important and extensive Indian camp, until the present paper. The only answer to be given is that at this camp as early as 1855 was made our "debut" in archaeology, aiding Dr. Swift, of Easton, Pa., in making a collection composed of stone implements, fossils from Durham cave, and minerals abounding in the vicinity. Dr. Swift continued to visit the locality year after year, especially after a heavy freshet in the Delaware river, which exposed numerous relics through the caving in of the high banks of post-glacial gravels on the western shore of this river. Our notes begin in 1857, and to bring the extent and magnitude of this important pre-historic, and also somewhat historic, Indian village clearly before the minds of the numerous and intelligent readers of this magazine, it appeared to us necessary to thus arrange the output of our notes. Our description commences about one hundred yards north of Durham cave, and we here copy from notes furnished by ancestors of the writer, the information extending back to 1790.¹ Near the river we found large quantities of refuse, chips of argillite, jasper and blocks of both argillite and jasper, apparently in the same condition in which they were brought from the quarries by pre-historic man. It may be noted here that the jasper quarry by the Indian trail was at a distance of a mile from the implement manufactory, while the nearest argillite fit for arrows or spear points was found at a much greater distance down the river. The refuse was thickly scattered over a distance of five hundred yards, and some ten to twelve feet in average width. Very few arrows, turtle-backs, or spears were found mixed in with the chippings.

The stone-paved fire places were set in an irregular order along the river banks from the implement manufactory to within a short distance of the 1727 Durham furnace ferry. The fire sites were about six feet in diameter, and from twelve to eighteen inches in height, composed of burnt stones, ashes and charred wood. The earth-lodges were dug into the river banks and were from ten to twelve feet wide and six to eight feet deep, and appeared as if they had been roofed over with brush wood, which had decayed and dropped to the floors of the earth lodges, where it formed a floor of rotted mold about two inches thick. A few of these earth lodges² constructed by the Indians remained until the great freshet in the Delaware in 1841, when they and nearly all of the fire sites were destroyed.

We commence now with our own notes, and will endeavor to describe the Indian village as we found it in 1857, and also the various finds made, as well as

¹The Laubauchs, when not engaged in active duty on the erected frontier forts of this state, fighting the Indians, were employed at the Durham furnace in 1727, close to the Indian village under discussion. They left no written records in regard to this particular pre-historic town earlier than 1790, but authentic traditionary evidence relating to the same, gathered and furnished by old residents of the vicinity, has enabled the writer to extend his notes back to an early period in the eighteenth century, or to 1750. The information thus obtained, in connection with that of our ancestors, verified by some forty years' practical field investigation in archaeology, etc., fairly claims a niche in the history of the aborigines of Pennsylvania and New Jersey.

²The "earth-lodges," so called by the fishermen along the Delaware, had been constructed by the Indians, and after they had left the river country the white residents in the vicinity kept a few of their dwellings in repair for shelter during storms occurring at night, while they were watching the "weirs" or wooden "fish baskets" which they had built in the river.

matters pertaining to it as gathered from those who reside in the vicinity, who were then (in 1857) already aged men and women.

As before noted, Dr. Swift, of Easton, knowing the importance of this prehistoric camp site, was not slow in making all out of it he possibly could to increase his own private collection and aid the increasing and valuable collection of Lafayette College at Easton. The larger portion of the finds made here were later by him donated to the aforesaid college and placed in Pardee hall, connected with the institution. Unfortunately, a few years later this building burnt down, and with it nearly all of the material donated by him and that of the writer was lost to posterity and science.

The collection so made and unfortunately destroyed by the fiery elements, consisted of several thousand arrow and spear points, banner stones, pottery, some profusely ornamented and some plain, steatite pipes, pestles and mortars in all their variety, gorgets of steatite, steatite tubes, net sinkers and hammer stones, in fact, everything generally obtained on a long-occupied Indian village site.

Later on we made some important finds in the line of pestles, axes, arrow and spear points, pipes, effigy stones, mortars, etc. One stationary mortar was used by the Shawnee Indians until ordered away by the Delawares from the village. This fixed mill has a depression ten inches in depth and twelve inches in diameter at top and flaring to five inches in diameter at bottom. It was located some thirty feet from the river, while used by the Indians; subsequently, when the Schenk family came into possession of the property in 1770 it was removed a short distance away from the river. Later the property was purchased by Jacob Raub, who moved the mill to the house and used it to pound and crack corn in for poultry. Still later a new building had to be erected owing to the construction of the Delaware division canal, which passed directly over the formerly erected building; so in 1829-30, after the new building was completed, the mill being rather unwieldy, a hole was drilled in it at one side and a blast put in which broke away from it a large portion, but happily left the mill portion intact. It was then moved to the well and utilized for some time as a basin or trough to wash and bathe the hands and feet in. The mill was in the possession of the Schenks about thirty years, in possession of the Raubs ninety-six years, and is now in the possession of the writer since September 14th, 1896. It has but very little carving on it. Its composition is the ordinary granulite of the South mountains and was washed here along the river banks by the glacial floods of remote times. The extent of the village site under discussion is fully one mile in length and before the freshet of 1841 must have been, judging by the relics, fire-sites and fire-broken stones, about five hundred yards wide in its central portion, tapering to about one hundred yards at the north and south ends.³ The whole extent of the village was situated on post-glacial deposit, and during its occupancy must have been subjected to periodical and overwhelming overflows, as in 1862, after a heavy freshet in the Delaware we visited the site and found that

³The northern portion of the Indian village is at present included in the built-up portion of the town of Riegelsville. Whenever foundations for the erection of buildings are dug, various stone relics such as axes, arrow and spear-points, discoidal stones, etc., are unearthed. Some are found on or near the surface, but numbers are found at all depths. At the upper limits of the town, near the river, were exhumed from time to time skeletons of Indians which had been buried here. The bones were very much decomposed and brittle. With them were found numbers of shell beads, perforated and of different colors, black and white, from a quarter to half inch in diameter, and five-eighths of an inch in length. Also a few of steatite, perforated and finely finished. Nearly all of the beads thus found were appropriated by the workmen, given to their children and lost. The majority of this class have an idea that what they cannot eat they must destroy.

from sixty to one hundred feet of the bank inland had been torn away. At a perpendicular depth of at least thirty feet we pulled out from the bank upwards of sixty argillite arrows, from three to six inches in length and some of them very much decayed, showing that they had been buried in this debris for ages.

CHARLES LAUBACH.

"TURTLE-BACKS."

Near this city, on the south side, there were several patches cleared in the heavy timber by the Indians where, up to 1831, they lived in summer and tilled their crops. The place is still known as Ruin village. The first account we have of it is by the Rev. Isaac McCoy, who in 1832 called there when on his way from the Carey mission, near Niles, Michigan, to Fort Wayne. An ancient Indian trail leading from the "Great Bend" of the St. Joseph river to the lakes in the south part of this county, passed through the edge of the village. Near the line of this trail, at this point, a man named Joseph Brown was plowing a few years ago, when the plow turned up several queer-looking objects which excited his curiosity. They turned out to be celts or "turtle-backs." There were an even twenty of them cached here within a space about the size and shape of a half bushel. They were not altogether uniform in size, shape or workmanship; but pretty nearly so. The accompanying cut is a good representation of one of the best of them. It is about six inches in diameter and two and a half inches



thick at the thickest point. One side is nearly flat and the other convex, with the greatest elevation at about half way between the center and edge, somewhat like an abalone shell. In another fine specimen the crown of the convexity is almost exactly in the center. A secondary chipping of the edges of all the specimens leaves no doubt that these were finished implements, used for cutting. The whole of the circumference is thus sharpened. The material is a greyish jasper, and was in the form of nodules, the concentric rings of which are strongly marked. I made inquiry of our state geologist as to the probable original location of these nodules, but he was unable to give me the information. Single specimens of this species of aboriginal workmanship have been found at several different points in this county, but nowhere in deposits, as in the case mentioned.

D. R. LEEPER.

South Bend, Indiana.

CORRESPONDENCE.

Editor of The Archaeologist:

I have sent you a photograph of a stone that was found in a quarry here recently. It is the cast of a foot. Whatever made it stepped on a stone when it was in a soft or plastic state and sank into it to the depth of four inches. On the foot being withdrawn, sand washed into the hole made to the depth of an inch, and hardening into stone, formed the cast of the bottom of the foot. On top of the sand, shells washed



in until the hole was filled. These, in the course of time, cemented together and formed what is known here as shell rock or firestone. It is the right foot and is about ten and a half inches in length and was evidently incased in a moccasin or some wrapping resembling one. The form of the great toe is quite distinct and the slope of the others can be traced. The photograph is one-third size. The casing of stone around the bottom of the foot is in place as seen in the picture except on one side of the heel, but could be easily detached. The color of the stone is a dark red, almost an umber.

W. T. FENTON.

Conewango Valley, N. Y.

The American Archaeologist:

The specimens resembling jade, jadeite and nephrite, secured by the Jesup expedition at Kamloops, Lytton and Port Hammond on the Fraser river, in British Columbia, and on Vancouver Island, so far as examined, prove to be serpentine and allied material vastly different from jade. Nearly every one of these specimens has passed through the hands of more than two experts since my return to this Museum. All of these expert mineralogists agree that none of the specimens submitted to them are jade. Over 80 per cent. of the specimens have been so submitted and the collection of these is a large one.

While at Lytton the opinion of local archaeologists was so strong that these objects were jade that I requested Prof. Chas. Hill-Font, who accompanied me in my work at Lytton, to select a variety of specimens of the material considered to be jade for examination by several experts. This was because I do not believe in hasty judgment in the field where proper facilities are not present, or by men not specialists in the special subject. These specimens were broken into three pieces and one piece of each was sent to the following three experts: The Curator of Geology at the American Museum of Natural History; the Curator of Geology at the Smithsonian Institution; and to Mr. Geo. F. Kuntz of Tiffany & Co., New York, special expert on gem stones for the U. S. Geological Survey. These gentlemen pronounced the material to be other than jade, jadeite or nephrite. It is my opinion that many of the so-called jade specimens cannot stand such a test.

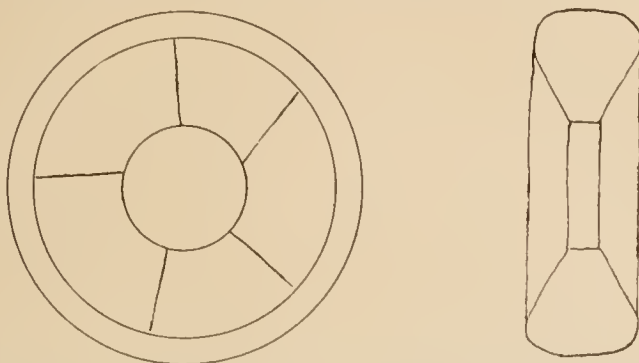
The absence of pottery on the islands of the Vancouver archipelago, reported in your February issue, is not so strange when we consider that none has yet been reported in the whole region from Oregon to the end of the Aleutian archipelago except a very few sherds found on one of the Aleutian islands by Miss Alice Fletcher. In my work in British Columbia, throughout the breadth of the Province and along its entire coast line, I neither found nor heard of a single pot sherd.

HARLAN I. SMITH,
American Museum of Natural History.

Editor of the American Archaeologist:

In reading Catlin's "Life Among the Indians" (the one intended for children), I notice a mention of the "Stone Medicine Man." He says (page 171): "It was the figure, in tolerably good proportions, of a man lying on his back, his arms and legs distended, of some three or four hundred feet in length, composed entirely of flat stones, which had been brought by the Indians, probably through centuries, and deposited there" (near the Pipestone quarries in Minnesota).

Has any mention or description of this work been made by other writers? This seems to me to be the only case of a work of like nature on this continent, as I have never as yet seen mention of anything of like character.



I send you with this a sketch of a stone "ring," from the James River, about sixty miles above Richmond, Va. Will you give an opinion on this? I think that General Gates P. Thruston's quotation from Adair (*Antiquities of Tennessee*) fits it best. But his typical illustrations are not perforated. This is made from a talcose stone, with crystals of a soft, lead-like composition through it, although the surface of the crystals is black. It is very finely polished. The marks, or rather lines, with which it is decorated on its inner surface, are only on one side. The drawing is perfect in detail, these lines not running regularly to the center.

I have been much interested in *The Archaeologist*, but was disappointed this month in not finding a continuation of "Our Digger Indian Neighbors."

Baltimore, Md., 4 South Howard street.

J. W. HANCOCK.

[Our second paper descriptive of "Our Digger Indian Neighbors" has been written some time, but was set aside for other contributions of more interest and value.

The "stone ring," of which we present a face and section view, of one-half actual size, in our opinion was a "spindle whorl." Fitted closely on a primitive spindle, it acted as a flywheel and imparted the momentum necessary to accelerate and regulate its revolutions. The dimensions of this fine specimen, as stated by Mr. Hancock, are as follows: Extreme diameter, 3.5-8 inches; thickness of outer rim, 1.1-1.6 inches; diameter of perforation, 1.3-8 inches; thickness at the perforation, one-fourth of an inch.

We have not seen the edition of Mr. Catlin's book for children, from which Mr. Hancock quotes. In one of the "Letters" of his great work on *The North American Indians*, Mr. Catlin states his intention to go and see, on his return from the Pipestone quarries, the "Stone Man Medicine," but nowhere makes any further reference to it in the book. Early travelers over the vast area lying between the Mississippi and Missouri rivers, from the Des Moines on the south to Manitoba in the north, frequently saw, delineated on the surface of the prairies and ridges, figures in outline made by Indians placing small boulders closely side by side. Some of these figures were simply circles, squares, crescents or meaningless rows of stones, either of small or large dimensions, while others were plainly intended to represent the human form and that of certain animals. Two of these outline stone drawings were still in place as late as 1883 on an elevation known as Punished Woman's Hill, some distance east of the Pipestone quarries in southwestern Minnesota. The figures were of a man lying on his back with arms extended, and of a woman in the same position. The extreme length of the man was thirteen and a half feet; that of the woman eight feet. Not far from these, on Buffalo Ridge, there is probably yet to be seen the outlines of a buffalo, twelve feet long, made of small boulders lined together like beadwork.

In 1838 J. N. Nicollet explored the Coteau des Prairies region—in which are the noted stratas of red pipestone or Catlinite—and in his report published in 1845, in treating of the numerous surface deposits of glacial erratic boulders, says that of this material, on one of the elevated crests of the Coteau, the Indians constructed the effigy of a man, “so that the spot is called Tuyanwitchashta-Karapi; in English, the place where has been built the man of stone.” Mr. Nicollet does not say that he saw it; but he designates its locality on his large map published in 1842 by the words “Stone Man.” One or two early settlers or government employes in southwestern Minnesota are said to have claimed that they saw it, but have left no description of it. From all that can now be learned of this work, we conclude that it was not of gigantic proportions, and was, like all other such figures there, merely outlined by rows of waterworn boulders.

Bird-shaped mounds of stone erected by pre-historic Indians occur in Georgia, and a few other localities; and Dr. Lapham figures effigy mounds of earth of huge dimensions in Wisconsin that, by aid of a fanciful imagination, may be thought to resemble the human form; but perhaps nowhere in the United States has been seen such a pre-historic Indian monument as that Mr. Hancock says Catlin describes as three or four hundred feet in length, composed entirely of flat stones.—Editor.]

Editor of The American Archaeologist:

Some time during the past summer I received a sample copy of *The Antiquarian*, the receipt of which I acknowledged. Recently, another copy was received, bearing the title of “*The Archaeologist*,” embracing an exhaustive description of Prof. Moorehead’s mound exploration on the Scioto.

In the summer of '87 I explored numerous mounds in various parts of the Miami Valley, some of which were profoundly interesting; especially is this applicable to the “Warner” mound, which was *terraced*; the only example of this form that has come to my notice in the Miami Valley. This was a *burned* mound, and so far as I know, the most remarkable on record. I regret that my manuscript, embracing a full description of all my mound explorations, has been misplaced, lost or stolen. Otherwise, I would send you a copy of this remarkable mound. I must, therefore, content myself by recording a few items from memory.

This mound consisted of two terraces, the first of which was five feet in depth and twenty feet in width. Embraced in this mass were five distinct strata, separated by clay covers, burned to a brick red; specimens of which, in my possession, have become as hard as brick. The inter-strata consisted of human remains calcined. Hence, the inference deducible is that a layer of human bodies was deposited, embracing the entire surface area. Over these bodies was spread a cover of clay, which seems to have been tempered; inferred from the uniformity by which they were distinguished. On this clay cover a fire was kept burning until the clay was changed to a brick in consistence and color. These covers were spread over the burned remains occasionally, while the crematory was still covered with glowing coals inferred from the presence of large masses of charcoal.

I would suggest that, if the success of archaeology depended upon such old, worn-out specimens as your correspondent, it would languish and die. S. H. BINKLEY.

P. S.—As I have an hour and a half before mail time, I will improve it by directing your attention to my discovery of interesting palaeoliths. My collection embraces four birds, one saurian which is carved in bold relief, one nondescript, etc. These objects I found in quaternary deposits; proving thus that man was here in pre-glacial time—probably in the Miocene. And why not? The Pliocene embraces the ice period. Now, as man was here in that inclement period, is it reasonable to suppose that an All-wise Creator would select it as the proper time to introduce his crowning work? The Miocene was distinguished for its magnificent display of flowers and luscious fruits. Therefore, by insisting upon the Pliocene, we cast unseemly reflections on an allwise Creator.

Alexandria, Ohio.

S. H. B., Aetat octogenta et quinque.

(It would be transcending our province to discuss the questions raised by Mr. Binkley in his postscript, but we are very eager to learn all the particulars relating to his discovery of the palaeoliths he mentions. We hope he will consent to enlighten us considering them at his earliest convenience. Judging from the matter of this communication, and from his beautiful penmanship, which is a marvel of clearness and regularity almost equal to typewriting, though his age, he states, is eighty-five, we cannot believe him to be the “old, worn-out specimen” he modestly represents himself to be.—Editor.)

Editor American Archaeologist:

In your February issue the subject of cupped or pitted stones is discussed *pro* and *con*, yet many of the conclusions seem foreign to the subject. Two miles below Pitts-

burg, upon the Ohio river, there are the remains of two Indian villages about one mile apart, having a mound half way between them. These towns and vicinity have been celebrated for the number of implements and weapons found near them; and the great number of cupped or pitted stones found there has been remarkable. They are principally water-worn boulders taken from the river, measuring from six to eighteen inches in diameter; beside several large fixed boulders containing ten to fifteen cups on them, averaging half the size of a hen's egg. These impressions we have always supposed to be receptacles for grinding paint of various colors; a considerable quantity of which was used by our Indians. The generally well-defined edges of these depressions seemed to furnish proof of the presence of a small pestle, perhaps of bone, with which the paint was ground and mixed.

Bellevue, Pa.

THOMAS HARPER.

To the Archaeologist:

The indented or corrugated discoidal stones, of which I send you representations, were found near my home here during the past summer. In grading streets a portion of a large, prehistoric Indian village site was uncovered. This work I watched carefully, explaining to the laborers where and how I expected relics would be found. The result was that I secured about fifty rudely-made hammer-stones, many of them being cores, or nuclei, from which flakes had been struck; none of them were ground or had the usual depression on each side, as is common in the hammer stones found in the eastern states. I also recovered thirty rude metatas, or mealing stones, and more than a hundred manos or grinders, many of the latter very neatly wrought, and several of the metatas were worn through the bottom by long use. The metatas found were grouped together, having been carefully laid down, bottom side up, and buried from two to three feet under the surface. This, I inferred, indicated that these implements



were buried purposely and with care and not by accident or by natural accumulation of earth and sand over them. Two of these, made of micaceous rock, had so disintegrated as to fall in pieces when exposed to the air. I also found one very nicely finished pendant, about five inches long; one stone ring four inches in diameter, made of volcanic tufa; one common arrow-head only; one small pestle and not one mortar; six plain discoidal stones from four to seven inches in diameter, and eleven indented discoidal, as shown in the cut. One of them has but two nicks on its periphery, and many perhaps have been unfinished. I have no knowledge of their use, but will try to learn something about them from some of the old Indians here. An Indian woman told me that they were buried by the medicine men on either side of the doorway of their huts; but this is not reliable testimony. I have seen four other similarly indented round stones found in this county, and have never heard of them elsewhere. I hope this account may meet the eye of some one who can explain their use.

South Pasadena, Cal.

HORATIO N. RUST.

To the Archaeologist:

On pages 46 and 47 of your paper for February, Mr. Ivy suggests that the cupped or pitted stones of the stone age were used as hammer stones. I think he should be more definite. We have hammer stones, pitted and also cupped stones, but not used for hammers. There is a very marked difference between the two in this vicinity, although both made of the same variety of stone (hard boulders or granite from the glacial drift). I have quite a number with perforations from one-eighth to one and a quarter inches; some of them with perforations straight on the sides, of even width from top to bottom, as if bored with a blacksmith's drill; some to the depth of five-eighths of an inch, while the hammer stones simply show abrasions—rough on faces and also on sides and ends. The hammerstones are of one size and weight, nearer uniform than the cupped stones (one to two and a half pounds), while the cupped are of all sizes from one ounce to several pounds. I have one about $1\frac{1}{2} \times 1\frac{1}{4} \times \frac{3}{8}$ inches thick, which has eight perforations, five on one side arranged just like the boys arrange the marbles, the square being about three-fourths of an inch; on the other side, three in a straight row, with a line connecting them. These perforations are about one-eighth of an inch in diameter and a little less than one-eighth of an inch deep. It surely is not a hammer stone or fire stone. What was its use?

Virginia, Ill.

JOSEPH WILSON.

Editor of The American Archaeologist:

The query of Rev. H. C. Meredith, in the January Archaeologist, is worthy of an extended answer. That the peculiarly fashioned flint arrow points of Chiriqui occur also in California is not at all antagonistic to the theory I have presented; in fact, that theory is strengthened thereby; for California is much nearer to Chiriqui than either of the other regions mentioned by Mr. Meredith. A colony of the same racial stock to which the Shawnee Indians belonged may have gone north, either by land or by water, along the coast of the Pacific, and finally settled in California. The finding of these Chiriqui flints in California leads to the conclusion that in former ages there may have been intercourse between the peoples of the two countries. No good reason can be offered against this conclusion. The intercourse may have been of a commercial nature only; and again it may have been compulsory, resulting from invasion or expulsion—probably from the South. That the people of South America sailed the waters of the Pacific ocean is attested by the Spaniards who, when coasting down to Peru, encountered the native "balsas" at sea. Those natives therefore understood navigation.

The Shawnee Indians may not have originated in Chiriqui at all; but that their ancestors migrated from a region south of Florida appears to be a well-founded fact. It may be assumed that a portion of the migrating people were joined by a band of Chiriqui Indians, who in time, introduced their arrow points among their allies. This supposition may account for the comparative rarity of that peculiar style of implements. A nation wandering from its native home gradually changes its customs, and, in the lapse of ages, loses its identity as well. There is another version to this matter of the emigrating Shawnees, namely: Catlin's Welsh-speaking Mandans—(the native tribes of that regions instead call them "Mandrills")—may have been a remnant or portion of the Norman, Irish and Welsh settlements of pre-Columbian times, who in subsequent years (after the dreadful years of the "Black Death") merged with the migrating Shawnee Indians in their northern invasion, which it appears extended as far to the north as Hudson's Bay. The iron implements found by Dr. Cyrus Thomas in the mounds of North Carolina point to European contact. The tradition among the Shawnees of having crossed a great sea may be a remembrance of that portion of them of Celtic origin whose ancestors did cross the Atlantic ocean. In the narrative of David Ingram and companion, who traveled from the Gulf of Mexico to the Bay of Fundy in 1568, they mention meeting Indians on their way who used Welsh words in their language, and had arrow heads and other implements made of iron.

The Shawnees were known to the early French explorers as Chaouanons. Hennepin mentions them as the Chaoumans. On Father Abraham's map of the Fort Duquesne region they are styled Shanapins. The name Chaouanni appears on a French map of Hudson Bay of 1722; and we find the Shawnees distributed as far as Hudson Bay and the Upper Missouri; west of the Mississippi as far south as Arkansas, as well as in the other localities mentioned by Mr. Meredith.

In closing, permit me to ask a question for information. From a friend in California I received an arrow point made of obsidian from the Catalina islands. Is obsidian native to those islands, or was it imported there? If the latter, when and how?

Chicago, Ill.

CHARLES A. DILG.

Editor of American Archaeologist:

I noticed in Vol. 1, Part 2, of your magazine quite an interesting as well as instructive account of caches of flint implements found in various localities in Michigan. Thinking possibly a short sketch of a recent acquisition to my cabinet of this class of flints would interest some of your readers, I take the liberty of addressing you. The flints are eighteen in number, ranging from 5 to 6½ inches in length, and from 1½ to 2½ inches in width. Seventeen of them are of light blue, and the other one of yellow chert. All of this lot, with one exception, are delicately chipped, showing that great care had been taken in the manufacture of them. The exception mentioned is the long, irregular flaking of one of the eighteen. None of these implements are over three-eighths of an inch thick, making them very delicate and thin.



A very noticeable feature, and that is, I think, seldom met with, is the yellow tipped base of twelve of them, extending from the end up one-fourth to one-half of an inch. Seven of the lot have a notched base.

This cache was found July 14, 1896, in Moccasin Bluff, one mile north of Buchanan, Berrien county, Michigan, about eighteen inches below the surface in two deposits, one a few inches above the other. The exact number in each cache could not be ascertained. There was a small stone ax found associated with the flints. This was all that was discovered at the time; but I understand that while excavating there a year later, in the same spot but about three feet below the surface, a skeleton in sitting posture was unearthed, no part of which, except a portion of the skull, could be preserved, as the balance of it crumbled to dust as soon as exposed to the air. The photograph I enclose shows these flints fairly well.

LESLIE W. HILLS.

Fort Wayne, Ind.

Editor of The American Archaeologist:

In the February number of The American Archaeologist I read with some interest the description of some archaeological remains on the farm of Dr. M. S. Pixley. The reading of the article reminded me of a prehistoric work in this locality. Thinking that some of your readers have never seen a description of it, and as no explanation satisfactory to my mind has ever been given as to its purpose of construction, or who constructed it, I will endeavor to give a brief description of it.

This peculiar antiquity is located on a slightly sloping tract of ground which is covered by a thick growth of "black jacks," of recent growth, and is located six and one-half miles north, and five and one-half miles east of Lockwood, Missouri.

It consists of an elevation of ground not unlike a small ridge or embankment which extends in a circle and inclosing an area of probably one, or one and one-half acres. It is somewhat longer from north to south than from east to west. The ridge or embankment is not of uniform height and in some places scarcely a trace of it can be discerned. At its highest place it is not more than eighteen inches above the surface. Traces of depressions are seen adjoining the embankment in many places. Persons residing near this place for several years say that years ago it was much plainer than now; and they point out a place which they call an entrance to the enclosure. At this entrance there is no trace of an embankment for a few feet and residents say that formerly the embankment was visible entirely around the whole area except at this one point.

They are all agreed as to its being an old "French" or "Spanish" fort (all the pre-historic remains in this locality are ascribed to either the French or Spaniards by the general population.)

I shall not endeavor to say who were the constructors of these remains, or for what purpose they were made. I have only given a brief description of them from memory, thinking they might interest some student of archaeology, and in the meantime I would be glad to see an opinion expressed in regard to them by persons familiar with our western antiquities.

J. H. BROOKS, M. D.

Golden City, Mo.

(We would be pleased to have an accurate and detailed survey, and outline drawing, of the interesting work mentioned by Dr. Brooks, with a definite statement of its location and surroundings, before expressing any opinion of it.—Editor.)

NEW YORK ARCHAEOLOGY.

The New York State Museum has just issued an illustrated bulletin on the chipped implements of New York, prepared by me, and a second, on articles of polished stone, is about ready for distribution. I am asked to push forward one on articles of clay, which I have commenced, but there will be some necessary delay. As this is a State work, all our collectors will be naturally interested in it and it is desirable to make it as complete as a preliminary work can be. I am already indebted to the Archaeologist for valuable information and expect more, but its New York readers may help me much. The bulletin in question will be quite full on clay pipes, and nothing more is needed in the way of material, but if any person has anything remarkable in pipes, figures or descriptions of these may be useful. Earthenware will be illustrated by a few characteristic vessels and any one who has perfect New York examples of these would confer a favor by sending photographs or descriptions. Notes of locality and size of vessels are matters of importance. The style of ornament, however, will be one of the leading features. As I have a large number of characteristic or unique patterns, little is desired in this way, unless of an unusual nature. These illustrations will be from fragments. The southwestern part of New York has no representation, however, although pottery has been abundant there and some notable examples might be expected. The earthworks and mounds of Cattaraugus and Chautauqua counties should yield materials of interest.

It is hoped that bulletins of the same character may follow, illustrating bone, shell, horn and metal and notes on articles made of these will be appreciated. While the preparation of these will be placed in my hands, the honorary curator, Mr. A. G. Richmond, is making valuable additions to the State archaeological collection and to this many New York men will be glad to contribute.

Baldwinsville, N. Y.

W. M. BEAUCHAMP.

To The Archaeologist:

I send you a brief account of an ancient piece of work of the Indians in this neighborhood, which I think may be of interest to your readers. At different times for many years I have heard people speak of what they called a bridge built by the Indians, which was said to have still been used by the Indians when the whites first came into this part of the country. Early last fall, in company with Mr. William Rodgers, I visited it for the first time, and taking off my shoes and stockings, waded in the stream and thoroughly examined the structure. I found it to be simply a tier, or row, of large stones across the river, resting on its bottom. The stones are of uniform size, with level tops, of the same height, firmly imbedded in the river bed, and placed at a regular distance from each other, about as far apart as a man can conveniently step. Three of these stepping stones have been driven out of line, down stream a couple of feet; the rest still remaining in straight line. They must have been well set in place to have stood there so long, when we consider the hundreds—I believe I may safely say the thousands—of millions of feet of pine logs that have been floated down this river. The stream has in time changed its channel about ten feet, cutting into one bank and filling in on the other so that one end of this pre-historic causeway is ten feet on dry land, and the other the same distance from the present shore on the other side. My examination of these stepping stones convinced me that they were placed there by the hands of men and not by any accident of nature. At one end of the row of stones is a rude platform of stones, on the same level, made apparently for the convenience of stepping off on dry land; and from this two worn pathways diverge to the right and left. This primitive bridge is across Flint River, section 15, Genesee township, Genesee county, Michigan. I would be pleased to hear through the American Archaeologist, from the editor or any of its readers, if any similar crossing way, made by ancient Indians, is known in the United States.

Richfield, Michigan.

BYRON E. DODGE.

ARCHAEOLOGICAL FRAUDS.

Having had some experience in collecting Indian relics, I deem it my duty to call attention to such localities in which I know that counterfeit relics have been made.

In a lot of moundbuilders' pottery, I secured in 1879, I discovered some very good imitations that had recently been made at Charleston, Mo.

At Temple, Arizona, a large number of imitations of such specimens as are found in that vicinity, were made there and offered to me; but I readily discovered the fraud. While on duty at the World's Fair, in 1893, a man from New Mexico (whose reputation should have been a guarantee for the genuineness of his exhibit) brought to the Anthropological building, a lot of stone idols said to have been found near Santa Fe. They were submitted to my inspection and careful examination before admitting them to places in the exposition. I placed one of them in a pail of water over night and next morning, on washing off the mud and dirt, the marks of modern steel tools were plainly to be seen. They were not accepted for exhibition.

The very desirable soapstone cooking vessels, and other stone relics, found about Santa Barbara, California, are so perfectly counterfeited that sometimes experienced archaeologists are deceived by the imitations. The soapstone from which they are made is taken from Santa Catalina Island, and the serpentine from Point Piedras Blancos. By smearing them with grease, then burning and smoking them they are made to look like the best prehistoric specimens. And Santa Barbara does a flourishing business in these frauds. I think it is the duty of every archaeologist to expose these frauds as promptly as they would the making of counterfeit money.

South Pasadena, Cal.

H. N. RUST.

(Before receiving this timely communication from Major Rust we had written a similar warning to our readers, which will be found in our editor's department. We are thankful for such exposures of dishonest practices and will gladly give them the widest publicity.—Editor.)

To the Archaeologist:

I have just been reading the article in the February "American Archaeologist" entitled "So-called Drills or Perforators," by G. M. Sherman. In my collection I have about sixty of what I have called drills and perforators. I thought when I read that article I could pick out more than half of them that would plainly show the marks of wear and use. But upon careful examination, even with a good magnifying glass, I only found four that distinctly showed marks of service. I enclose outlines of them, full size. The outlines, of course, do not show the fine chipping on them; some of which are very fine, but will give an idea of the size and shape.

No. 1 is white flint.

Nos. 2 and 3 are agate.

No. 4, a very hard grey flint.

These all show that they have been used the whole length of the drill point or blade.

Nos. 5 and 6, though of much finer workmanship, do not show the marks of usage, being in that respect like the rest of those in my collection. If they were not used as drills, why is it that around old encampments we find so many broken drills and perforators?

GEORGE STEVENS.

Kishwaukee, Ill.

[Receiving above communication just as the copy for this number of our magazine was going through the typesetting machines, there was no time to have Mr. Stevens' rough drawings redrawn by our artist and then engraved. His illustrations, however, represent but slight modifications of very ordinary types that are common in every collection of prehistoric stone implements of any importance.—Ed.]

American Archaeologist:



As you sometimes illustrate I may mention that I have several relics which are perhaps worth figuring. I enclose a photo of one which has caused some discussion in this neighborhood. The most reasonable idea is that it was intended for preparing sinew threads for sewing. The specimen—reduced in the photograph—is one and a fourth inches in length, by one and three-sixteenths in width, made of black flint, finely worked and neatly beveled to an edge all around. It was found in a mound in Huron county, Ohio. Whether

you think it worth while to reproduce it or not, please return the photo with such remarks as may occur to you. The article itself I do not like to trust out of my hands, as I do not know where to find a duplicate. I have also a good drawing of a very fine adze, so called, one side flat, $6\frac{1}{4} \times 3\frac{1}{4}$ groove, $\frac{3}{4}$ around, weight $2\frac{1}{2}$ lbs.

Framington, Mass.

F. C. BROWNE.

(We have absolutely no remarks to offer, and will return the photo as soon as we can.—Ed.)

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QUIVIRA is the title of a royal quarto pamphlet of 96 pages, published in January, at St. Paul, Minn., by Hon. J. V. Brower, and dedicated to the Historical Society of Kansas. It is beautifully printed on enameled paper and finely illustrated with maps and many photogravures; and is an elaboration of the third chapter of Mr. Brower's "Archaeological Addendum" to his book on the Missouri River, published in 1897, which we noticed at length in *The Antiquarian* last June.

The greater part of last year was passed by Mr. Brower in archaeological explorations in the west, mainly in the State of Kansas, and this admirable monograph embodies the report of his investigations of ancient Indian remains along the Kansas river above Topeka, which, he argues, may have comprised the so-called "provinces of Quivira," the goal of Coronado's search and the ultimate northern point reached in his remarkable march across the plains from Mexico in 1541. The evidences in support of this view, upon which Mr. Brower relies, are but the usual debris of old village sites and camping grounds of the early Indians, found in many localities in that region, together with some correspondence of topographical features of that particular district with its indistinct description by the Spaniards; proofs far from conclusive, but very worthy of studious consideration. The accounts of Coronado himself and of his two historians, of the clusters of wigwams and their surroundings that the Indians said were called *Quivira*, where he remained twenty-five days before returning to the Rio Grande, are too vague and indefinite to admit of possible identification at the present day. In his report to the king of his expedition and its results, Coronado says: "It was the Lord's pleasure that, after having journeyed across these deserts seventy-seven days, I arrived at the province they call *Quivira*, to which the guides were conducting me, and where they had described to me houses of stone with many stories; and not only are they not of stone, but of straw, but the people in them are as barbarous as all of those whom I have seen and passed before this; they do not have cloaks, nor cotton of which to make these, but use the skins of the cattle they kill, which they tan, because they are settled among these (buffalo) on a very large river * * *. There are not more than twenty villages of straw houses there and in all the rest of the country that I saw and learned about, * * * so that the account they gave me was false, because they wanted to persuade me to go with the whole force, believing that as the way led through such uninhabited deserts, and from the lack of water, they would get us where we and our horses would die of hunger. And the guides confessed this, and said they had done it by the advice and orders of the natives of these (Rio Grande) provinces."

And Castaneda says when they arrived at this *Quivira*, "there they began to see some mountain chains." It is difficult to reconcile these statements of "a very large river" and sights of "mountain chains," with the known geography of the region about the mouth of the Big Blue, excepting by making broad allowances for lapses of memory and inflated imaginations on the part of the intrepid explorers, whose narratives are, with few exceptions, singularly free from

exaggerations. Coronado was on or near the "very large river" he mentions at its lowest stage, in August; but Castaneda, in stating that Tignex, the present Bernalillo on the Rio Grande, was situated "on the banks of a large, mighty river," may have had that stream in mind during its spring overflow.

There is little doubt that the Quivira, of "many houses of stone with several stories," that Coronado wished to find—and to plunder—was the old pueblo of that name less than a hundred and fifty miles southeast of his starting point on the Rio Grande; and that the Indians, having dear-bought experience of the ferocious rapacity and heartless cruelty of the invaders, concocted the plan of decoying them into the plains, under pretense of guiding them to the ancient pueblo of Quivira, with the view of their destruction; and continued the deception by giving the pueblo's name to the wild expanse reached by the marauders somewhere about the fortieth degree of latitude. That a tribe of naked, nomadic savages, or collections of their temporary skin or grass lodges on the Kaw or Missouri, should originally bear the pueblo name of Quivira, is by no means probable.

In this effort of Mr. Brower to identify the Elliott Village Site, south of the city of Manhattan, in Kansas, as the northern terminal limit of Coronado's travels, he has made out as strong a case as can be done in favor of any other locality from all data now known; yet, as he remarks, "the identity of the Quivira Indians and mound exploration on the Kansas River are questions which need further study."

"The remarkable deposit of bluish-gray flint found in the neighborhood of the village sites described," he says, "must have characterized the locality as so very desirable, and its location was known so far abroad that contending tribes fought for its possession, with herds of buffalo, fruitful valleys and quarries of flint, the prizes for which the savage man staked his life." This view is indeed plausible; still the fact that this flint quarry "was known so far abroad," considered with the many proofs of frequent occupancy by large numbers of Indians of different degrees of culture, also strengthens the suggestion we offered in this connection last June, that possession of this "flint ridge" may not have been an object of contention to be decided by battle; but as the beds of Catlinite in Minnesota, and the noted Flint Ridge in Ohio, this outcrop of flint and its vicinity was perhaps by mutual agreement a neutral ground where the tribes resorted, in peace if not in friendship, for their supplies of implement and weapon material.

COUNTERFEIT RELICS.

We feel that we cannot too frequently or too earnestly caution our readers to guard against imposition by unscrupulous scoundrels who may offer for sale or exchange fraudulent Indian relics. We will be very thankful to persons who will send us evidence of the guilt of any party in this mean and illegal traffic.

We have information from reliable authority that a certain person in Chadwick, Illinois, has offered for sale copper spears, pronounced by one of our best experts in knowledge of prehistoric copper implements, Mr. A. W. Robinson, of Waukesha, Wis., to be counterfeits. This suspected person is closely watched and may eventually be subjected to an investigation by the grand jury of his county. An esteemed correspondent in one of the mountainous districts of Old Virginia writes to us as follows: "I suppose that you are aware that in these far-away, outside-of-the-world mountains—among an ignorant class of mountaineers—we have a firm—a family—who systematically manufacture bogus pipes, banner-stones, arrow and spear heads, ceremonials, etc., of stone; and that their imitations are very clever? Though it is very difficult to deceive an ar-

chaeologist, they sell scores and scores of their imitations every year. I had the privilege of inspecting one of their workshops about two years ago. There were many genuine relics mixed with the spurious, for they open mounds and collect also. And here I wish to say that because of their practices discredit has been thrown on this section as unworthy of the attention of the archaeologist, when in fact it is one of the best fields in the United States, and practically unexplored."

There may be no law in our statute books prohibiting the counterfeiting of prehistoric Indian works of art; but all states have laws to punish those who obtain money by false pretenses and by swindling, and county officials throughout the country will confer a great favor upon science in protecting it by bringing this class of petty criminals to justice.

In the January number of the American Historical Magazine, published at Nashville, Tennessee, there is a comprehensive description of The Department of History of the late Tennessee Exposition, from the pen of General Gates P. Thruston. He was Chairman of the Committee having this department in charge, and the great extent and splendid success of its display were in very considerable measure due to his fine taste and depth of learning in all the different subjects it comprised. Tennessee is rich in archaeological and historical material, and from the large accumulations of these materials in the collections of its State Historical Society, and from the many private collections throughout the state, including his own, General Thruston was chiefly instrumental in bringing together in the classic building specially erected for it, the vast array of relics, historic and prehistoric, that formed the most valuable and one of the most attractive features of the State's memorable centennial exposition.

BOOK REVIEWS.

The legislature of New York in 1896 appropriated \$5000 to be expended in increasing its archaeological collections. In carrying out this object the regents of the State University wisely diverted a part of the amount to issuing bulletins of a popular kind illustrative of aboriginal life within the borders of that state; and the execution of this work was fortunately committed to the experienced and distinguished archaeologist, Rev. W. M. Beauchamp, of Baldwinsville.

The first of this series of monographs is now before us, a pamphlet of 84 pages, with several pages of fine illustrations from drawings made by the author, entitled "Aboriginal Chipped Stone Implements of New York." The whole field of chipped stone weapons and implements found in the Empire State is fully and exhaustively treated. The ample descriptions of each class of prehistoric art remains are interspersed with citations, comments and opinions of the author, making the publication one of much scientific value. This Bulletin is to be followed by others descriptive of polished objects of stone; of articles of bone, shell and copper, of pottery, etc., by the same gifted scholar, who has so well accomplished the beginning of the arduous task assigned him.

The wellknown geologist and archaeologist, Mr. Gerard Fowke, of Chillicothe, Ohio, who has been for several years in the service of the United States Bureau of Ethnology, has taken a position on the scientific staff of the Jesup exploring expedition, sent to the northwest to endeavor to discover traces of the North American Indians, and will sail for Siberia on the 20th of this month.

NOTES.

The visitor to Coronado Beach, California, especially if he is interested in American antiquities, should not fail to visit the museum there. In it are to be found objects of great archaeological interest.

Mummified remains said to be authentic of Ptolemy II, Philadelphus, King of Egypt, and other noted ancient personages, as well as a few mummy cases were recently sold at auction in London, England. They were imported from Egypt thirty-five years ago; Dr. Birch of the British Museum vouches for their genuineness. In the lot were also the dessicated remains of a Peruvian woman. An obscure individual bought the whole lot for three hundred and seventy-five dollars. "To what base uses are we put."

Signor Marucci, an Italian archaeologist, has discovered in the palace of Tiberius an imposing wall painting which he says represents the preparation for the crucifixion. Around a cross are soldiers bearing ladders, and under each soldier is written his name. There is also a long Latin inscription containing the name of Christus.

Marucci will soon publish a pamphlet illustrating his valuable and interesting discovery.

Major H. N. Rust, who is well known to readers of this magazine as a painstaking archaeologist, is doing excellent archaeological work in the vicinity of Pasadena, California, where he resides. He has discovered no less than eight prehistoric village sites, indicating that aboriginal man took a fancy to this location. He has unearthed specimens of nearly all stone implements used by these prehistoric people. We hope Major Rust will continue explorations and before long treat the readers of this magazine to an interesting paper on the subject.

A Mr. Thomas D. Elving, an archaeologist from Philadelphia, while on a tour of explorations in Mexico, came across the ruins, in an almost inaccessible valley, of an ancient prehistoric city situated about 200 miles west of Durango. He brought with him a number of curious and interesting objects. Mr. Elving is fortunate, for the authorities in Mexico, when aware of the fact, do not allow one to take from that country prehistoric implements.

The following from the Scientific American will no doubt be of interest to the readers of this magazine. Perpetrators of frauds seem to have existed in all ages, as well as up to the present:

William Tell has dwindled into a myth. Rousseau's tomb, which has been the bourne of so many pilgrimages during the last hundred years, has now been discovered to be untenanted, and now Bonivard, the "Prisoner of Chillon," so beautifully sung of by Lord Byron, is shown to be something very much akin to a fraud. Visitors to the old Castle of Chillon, on the Lake of Geneva, have long gazed with reverent eyes on the track worn in the stone pavement around the pillar to which the captive was chained during his long incarceration. This year the famous footprints mysteriously disappeared. An inquiry was made in the Cantonal Legislature as to what had become of them. Thereupon M. Vecqurat, Councillor of State, rose and unblushingly explained that they had never existed at all, but were artificially manufactured to satisfy the demands of a sentimental public. This year the usual repairs were done so late that there was no time to renew this venerable sham.

Professor Saville, connected with the American Museum of Natural History in New York City, has returned from an exploration in the state of Chiapas, Mexico. While there he visited the ruins of the ancient city of Palenque, so often written about by other explorers. He confirms previous reports of the great extent of that city, the ruins of which are covered with a dense forest growth. It is supposed that many large ruins, on account of this growth, are still securely hidden away.

From the ruins of the ancient Babylonian city of Sippura has just been unearthed by Prof. Pere Scheil, an able French Assyriologist, a clay tablet upon which has been inscribed in cuneiform characters the oldest story of the flood of Noah of the Bible. It dates back 2140 years B. C., and was made in the time of Isaac. The narrative of the deluge is strikingly similar to the Biblical account. Dr. William Hayes Ward, a distinguished American Assyriologist, says of this ancient Babylonian tablet:

"We have here a precious bit of clay on which was written a story of the deluge many centuries before Moses and about the time of Isaac or Jacob. That is enough to make the discovery one of great importance to Biblical science."

Dr. Herman V. Hellprecht, Professor of Assyriology in the University of Pennsylvania at Philadelphia, has just returned from the Imperial Museum of Turkey, at Constantinople, where he had been examining all antiquities and other archaeological objects which had been unearthed during the last campaign of the expedition at Nippur in ancient Babylonia. Discoveries made here carry the history of the people of Nippur to a period certainly 7000 and probably 8000 years, B. C.

From these discoveries, including thousands of fragments, mostly small, of vases broken by the Hamites in 2280, B. C., in the courtyard of the temple of this ancient city, Prof. Hellprecht has restored the earliest chapter of written human history thus far known. A. F. B.

The cuneiform tablets discovered at the ancient city of Niffer or Nippur, in Babylonia, have been carefully examined at the Ottoman museum in Constantinople, by their discoverer, Dr. Hellprecht, who deposited them there. From these tablets the impression was gained that Niffer is the city of Calneh, regarded as long ago as the time of the writer of Genesis as one of the oldest cities in the world. In a subterranean chamber, fifteen and one-half by nine and one-half feet, and eighteen feet beneath the surface, were discovered seven hundred and thirty tablets, a considerable number of which, upon being deciphered, revealed the fact that they were business documents once belonging to "Morashu, Sons of Nippur," a very wealthy firm of bankers and real estate dealers about the time of the reign of Artaxerxes I, 464-424 B. C. The business principles then in vogue were similar to those of the present time. These clay cuneiform documents are what we today term mortgages, contracts, leases, etc. "Morashu Sons" appear to have been the agents of distant Persians who owned most of the lands around this ancient city, and who on account of the hot and malarious Babylonian country, did not care to attend to their large estates in person, but had the above firm of bankers attend to leasing out their property to those desiring it.

One of the texts on these clay tablets guarantees that an emerald set in a gold ring will not fall out for twenty years. On another an inhabitant of Nippur complains to Bel-nadin-shumu that the latter's servants, in collusion with his own brother and nephew, have robbed his house. On the property being restored he agrees for himself and his children to take no legal proceedings against the servants or their master.

A contract obligates four persons to deliver 25,240 sun-dried bricks in a specified time and place. In a mortgage an orchard is pledged by two brothers as security for the payment of their debt. Another reveals a sixty-year lease of two kinds of lands and buildings, the rent being paid in advance and the tenant protected against all claims.

A number of men, while engaged in excavating for a new road at Milton, near Boston, Mass., came across, about six feet below the surface, a row of five graves. History and tradition identify the graves as those of Mingo, the last of the Ponkapog Indians, and his family. The Rev. Dr. A. K. Teele, the historian and antiquarian of the town, finds that in 1763 there stood near this spot a humble dwelling, where lived Mingo, then an aged man. The name of his tribe is perpetuated in that of the hamlet at the foot of the southern slope of the hill, called Mingo Hill, and in which the graves were discovered and also in that of the pond a few rods away.

Last February was placed on exhibition in the American Museum of Natural History in Central Park, New York City, the Jesup expedition collection, gathered during the summer and fall of 1897 in British Columbia. The collection consists of implements of bone, stone and carvings of both prehistoric and present Indians of that country. The means for the expedition were provided by Mr. Morris K. Jesup, and the detailed plans for it were entrusted to Dr. Franz Boas, who is in charge of the ethnological collections in the above institution. With him went Dr. Livingston Ferrand, Messrs. George Hunt, James Teit and Harlan I. Smith.

The collection is, scientifically speaking, a most valuable one and an important contribution to the problems which the expedition is trying to solve.

In the liberality of Mr. Jesup the citizens of New York can certainly congratulate themselves upon becoming possessed of so interesting and valuable a collection. Those who are willing to give their dollars for the enlightenment of a community without for the same receiving a return, are indeed few and far between. To have to write this at this time of our civilization betokens a sorry state of affairs. A. F. B.

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COMPARATIVE AMERICAN CIVILIZATION.

BY HUBERT HOWE BANCROFT.

To arrive at an approximate idea of the social condition of the several tribes inhabiting America at the time of its discovery by Columbus, we have simply to compare these tribal characteristics one with another, and with European and Asiatic civilization.

As to the question of races or species in America, ethnologists seem well enough agreed to call the American Indians all one people, however diversified in culture, traits, and languages,—all save the Eskimos, who circle around the north pole, and belong as much to one continent as to another. That is to say, however American tribes and nations may differ from each other, they differ yet more from all the rest of the world, and have many of their own peculiar resemblances in common. Nor does it seem profitable to spend further time in attempting to prove what can never be known until every Whence and Whither are made clear to man—the origin of the American Indian.

The first question the Spaniards asked themselves on landing, was: By what route came these people hither from the general Babylonian break up? And the next: Have they souls? The latter was the more important, and must of necessity be decided in the affirmative, else the Church were without occupation in this vast domain, and the pretty native girls obviously could not serve as mistresses to the pious cavaliers. Thus the question of soul was decided, and, if any one can tell what soul is, we have that as a starting point; in this respect the Americans are placed in the same category as the Europeans. Next, as to intellect. It would be difficult to prove that the native American intellect was inferior to that of the European or Asiatic; that there were not scattered throughout the wilderness here and there a Plato, a Shakespeare or a Christ. Among the Mexicans and Peruvians were poets, philosophers and statesmen of no mean order. Within the present century we have one example, at least, of a pure-blooded Aztec boy, who could not even speak the Spanish language, when at the age of twelve years, to escape punishment by an uncle for neglect of task imposed, he followed a cattle-drover from the mountains into the city of Oajaca, where a Catholic priest took him up to educate for the Church; the young man emancipating first himself, and then all Mexico from intellectual thralldom. As true greatness may be measured,—nobleness of heart united with mental and

moral supremacy,—there never lived a greater or a better man, or one who accomplished more grand and wonderful things, and from the purest and most unselfish of motives, than this full-blooded American Indian, Benito Juarez.

His achievements were more intricate and more important than those of any Washington or Bolivar, of any Napoleon or Alexander. While yet his mind was being trained to accept the dogmas and obey the mandates of the Church, he saw in that Church an overwhelming religious despotism, holding in its hands three-fourths of all the property in the country, swaying politics and society, mind and morals, the material and intellectual, at will. He saw the nation broken into scores of petty revolutions, and the roads infested with banditti. Then came the Frenchmen with their Austrian prince, thinking to plant imperialism in America while the United States were engaged in deadly strife for the preservation of their own integrity. As lawyer, judge, state governor, and finally as president of the republic, Juarez emancipated Mexico from the power of the Church, put down to a great extent revolution, and centralized the strength of the republic, and finally drove out the foreign invaders, thus leaving the country at his death all well prepared for the prosperous and benignant regime under Porfirio Diaz.

Hundreds of examples could be cited, as Pontiac, Red Jacket, Techotlatzin, and Manco Capac, showing the brain power of American aborigines. As to physique, the difference, if any, is not worth discussing. So with morality and religion; those of the old world were as bad as they could be, therefore those of the new world could be no worse. The Americans sacrificed human beings to their gods of wood and stone; the Europeans sacrificed human beings to their lust and avarice. For every heart torn from an innocent breast and thrown to Huitzilopochtli, a hundred innocent human beings were butchered in the name of Christ. Little to choose between them on the score of humanity and superstition!

Hence we may say that as between Americans and Europeans, in body, soul, intellect, morality and religion, there was practically no difference.

For the state of culture in America as compared with the culture in Europe we must look therefore alone to science, art and literature; to the inventions, contrivances and paraphernalia of civilization; and there was less difference in all these than may be supposed. I am speaking of the more advanced nations of America, of course, of the Iroquois, or nobler type of the American Indian proper; of the Nahuas and Mayas of Mexico and Central America, and the Peruvians of South America, and not of the lower orders of humanity occupying the arid inland regions of North America; or the malarious seaboard regions of the tropics, or the wind-whipped regions of the southern horn.

The civilized nations of America had their systems of ethics, of jurisprudence, of government, as well as their literature, arts, science, commerce and manufactures; but, as a rule, they were all inferior to those of Europe. The first great drawback with the Americans was their ignorance of the use of iron; next gun powder and printing, which last two indeed had then not been long in use in Europe. Iron is a great civilizer; it was nowhere used in North or South America. Copper was known, and the gold and feather work of the Americans was superior to anything of the kind in Europe. In the way of domestic animals the Americans were lamentably deficient, women being their beasts of burden. The Peruvians had their llama, and in some parts there were bisons and other tamed beasts; but as a rule it may be said that the Americans had neither iron nor domestic animals, and that herein lay the cause of the chief differences between the civilizations of Europe and America.

PREHISTORIC REMAINS OF THE TUNXIS VALLEY.

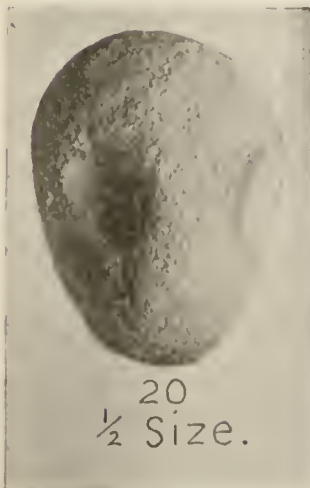
BY FREDERICK H. WILLIAMS, M. D.

HAMMER AND PIT STONES.

Yet in consequence of this very close connection with nature, whatever he met with became a possible agent in his struggles with her for existence, and not having differentiated his arts, each tool may have had an hundred useful possibilities. Necessity is no more the mother of invention in tools than she is



HAMMER STONES.



A PIT STONE WITH THREE "PITS"
(One opposite the two shown.)

of variety in their uses. It must not then be expected that our names of his many implements, however useful to our study, always convey the Indian's conception of them. The simplest of all implements is the hammer stone. Wherever a brook rolled over the gravel beds, the Indian found it ready smoothed and shaped for his hand. On all his old camping grounds they may be collected in every sort of condition, from the plain stone showing no marks of usage, through various stages of elaborate working, down to those that have been pounded nearly to pieces. Wherever we find the spalls or cores of the arrow maker, we find the little "knockers" with which he worked his quartz or cherty pebbles; Figs. 15, 16. In this locality the more common hammers are made of a hard quartz and quartzite. Some of these have been carefully pecked all around their edges and brought into a round (Fig. 17), or oval shape, (Fig. 18), a much used hammer. Many are beautiful objects; Fig. 19. Others are made of a coarse but

compact yellow quartzite and red sandstone. Irregular nodular stones of agatized material and quartz seem to have been prized for their great density and resistance to fracture.

Many of the objects in yellow sandstone, red sandstone and even compact quartzite are found with one or more little circular depressions or "pits". These pits are conical and usually about one-quarter to one-half of an inch deep.

Fig. 20 shows a rudely egg-shaped hammer of coarse red sandstone, in which the ingenious Indian, in addition to deep pits for thumb and middle finger, has made a third on the top of the stone for the index finger. This arrangement gives a firm hold. More commonly there is a pit upon the two flat faces of the hammer, opposite to each other. Sometimes there is only one pit, and again a stone may have five or six more pits irregularly placed. Figure 21 shows a beautiful



PIT STONES.

red sandstone that has the indescribable polish of long handling, with one pit on its long face and the other on its smaller end. These stones are found all over the world and are usually called hammers. The writer thinks many of them show no signs of having been used upon other stones. Simple as they are they possess a sort of beauty which endears them to their possessor. Fig. 22 is a one pit stone or "anvil." Figs. 23, 24, are two pit stones or "hammers."

It is conceivable that these simplest of tools, as the Indian came to comprehend their possibilities, worked as great a change in separating him from his ferine associates as the discovery of iron and steam worked in advancing mankind from the stone age conditions.

From striking them together he

may have gained his first conceptions of producing fire at his own pleasure. By striking them together he slowly discovered the different qualities of stones, the possibilities of the conchoidal fracture became manifest to him. From them he gradually evolved the whole art of chipping and pecking in stone. No thoughtful student can view these objects without emotion; their prototypes were the cornerstones of the portals of civilization; their discovery was the "open sesame" to those inventions to which man owes his present physical ameliorations. Whether it were apes or men that splintered the miocene flints of Thenay,* we can not doubt that when primitive man began to strike these stones together with a conscious purpose, he struck the blow that will be the ultimate death knell of all his savage animal associates, against which, unarmed, he waged an endless conflict.

* The Abbe Bourgeois showed split flints from the miocene at Brussels, in 1873.

POLISHERS.

The stone age artisan had three general modes of fabricating his tools and ornaments. Having discovered a stone suitable for his purpose, often one having a natural shape somewhat similar to the object desired, a few well-directed blows with his hammer would roughly complete its outlines. Now he might slowly reduce it to shape by light and repeated blows of his hammer, wearing it away in coarse dust. This was pecking, traces of which show upon nearly all large objects, except those made from flint or chert. Or he might grind it into shape by rubbing it upon a hard stationary stone of gritty nature, or by



POLISHERS



FLESHERS

rubbing other gritty stones on it. This was polishing. Finally if the stones worked upon were of a proper nature to take the right cleavage, he might chip it away by direct blows from his hammer, or by sudden impulsion upon its edges with a hard object, wear it down in little flakes. This was flaking and chipping. Often several or all of these actions might be brought to bear successively upon one object. The little flakes produced by the ancient chipper are among the most distinctive of his vestiges. The eye of the practiced "relic hunter" trails their fabricator by these little spalls, much as the red man trailed the objects of his chase. By observing their variety, condition and abundance, he is often enabled to ferret out old and productive village sites. It seems probable that flaking was the earliest of all his arts in stone, and yet it ultimately reached the highest place among them. Besides the hammers described there have come down to us quite a variety of tools used in these processes. In Figs. 25, 26 and 27, one-third natural size, are shown grinders or polishers of gritty red sandstone and quartzite. Fig. 27 is a

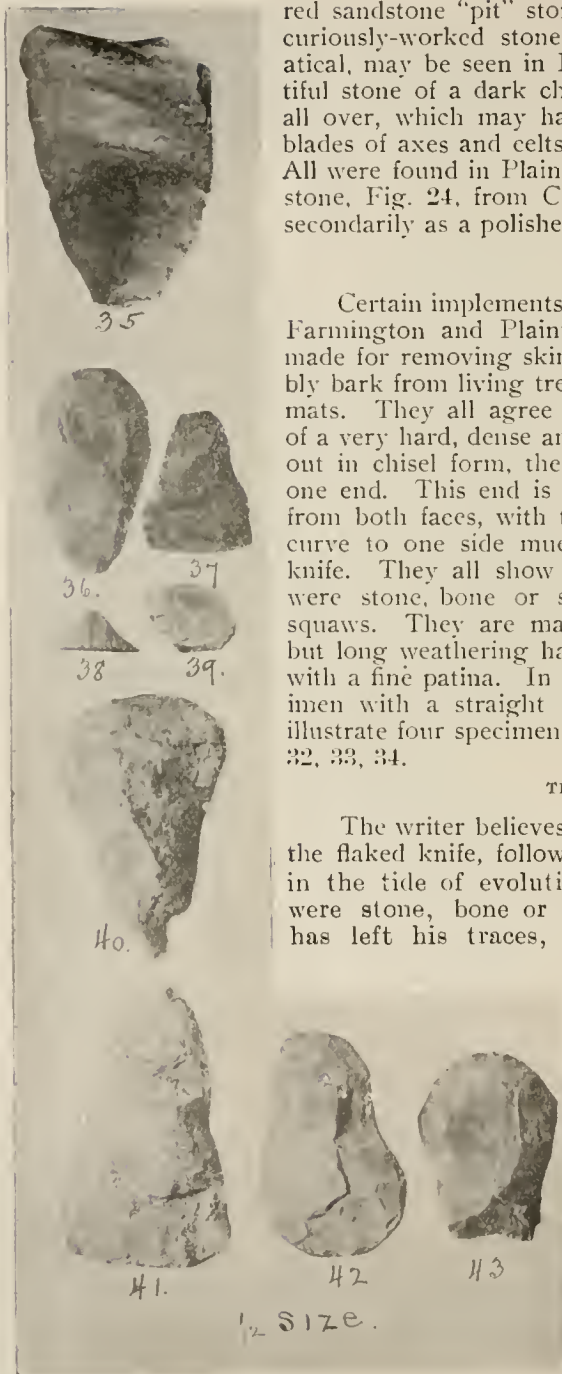
red sandstone "pit" stone made into a polisher. Other curiously-worked stones, whose use remains problematical, may be seen in Figs. 28, 29. Fig. 30 is a beautiful stone of a dark chocolate color, carefully polished all over, which may have been used in perfecting the blades of axes and celts. The other tools are quartzite. All were found in Plainville or Farmington. The pitted stone, Fig. 24, from Congamond Lake, has been used secondarily as a polisher.

FLESHERS.

Certain implements have been sparsely found around Farmington and Plainville, which seem to have been made for removing skins from slain animals, and possibly bark from living trees, used in making basketry and mats. They all agree in being made from thin flakes of a very hard, dense and heavy stone. Roughly flaked out in chisel form, they show no fine work except on one end. This end is always brought to a sharp edge from both faces, with the cutting edge prolonged in a curve to one side much like an old-fashioned shoe knife. They all show the friction polish of long use, were stone, bone or shell, wherever prehistoric man squaws. They are made from a silicious blue stone, but long weathering has made them a dull earth color, with a fine patina. In the Bristol Museum is one specimen with a straight blade resembling a chisel. We illustrate four specimens, all from Farmington; Figs. 31, 32, 33, 34.

THE SCRAPER.

The writer believes that the scraper and its brother, the flaked knife, followed next after the hammer stone in the tide of evolution. Whether his environment were stone, bone or shell, wherever prehistoric man has left his traces, these most useful of tools are found. Among such simple implements we can not be surprised that along with specimens of the highest art should linger others as rude and simple as may be found among the earliest vestiges of man. Fig. 35 represents such an object in yellow jasper from Gramb that seems the counterpart of specimens from prehistoric France. Made from various cherty or quartzite stones, some were simply more or less chipped on one edge, as in Figs. 36, 37; some re-



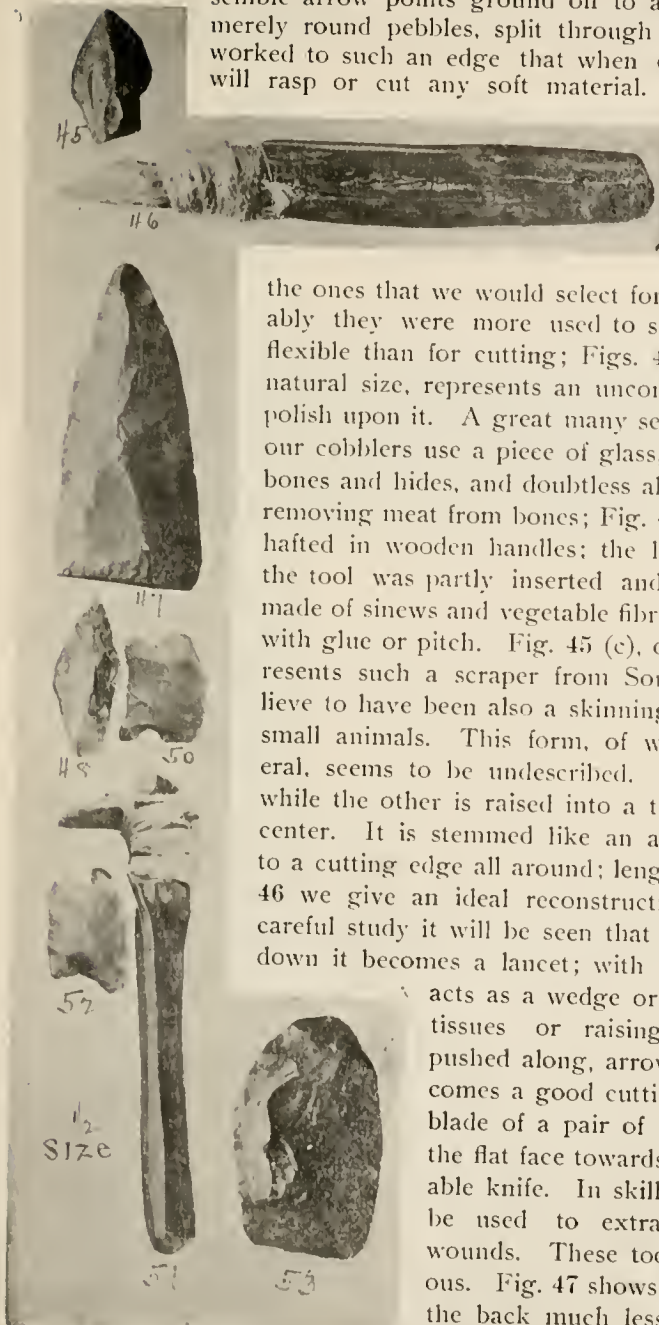
SCRAPERS.

semble arrow points ground off to a blunt edge. Others are merely round pebbles, split through their centers and then worked to such an edge that when drawn towards one they will rasp or cut any soft material. Figs. 38, 39, are fine ex-

amples. Many of these tools show signs of very prolonged use by the exquisite polish upon their working surface, and these are not always

the ones that we would select for shape or beauty. Probably they were more used to soften skins and rub them flexible than for cutting; Figs. 40, 41. Fig. 42, one-half natural size, represents an uncommon form with unusual polish upon it. A great many seem to have been used, as our cobblers use a piece of glass, for rasping wood, horn, bones and hides, and doubtless also in preparing food and removing meat from bones; Fig. 43. Some were doubtless hafted in wooden handles; the handles being split open, the tool was partly inserted and seized on with threads made of sinews and vegetable fibres, and perhaps cemented with glue or pitch. Fig. 45 (c), one-half natural size, represents such a scraper from Southington, which we believe to have been also a skinning tool, and admirable for small animals. This form, of which we have seen several, seems to be undescribed. One face is always flat while the other is raised into a triangular ridge along its center. It is stemmed like an arrow point and brought to a cutting edge all around; length 1 1/4 inches. In Fig. 46 we give an ideal reconstruction of this tool. Upon careful study it will be seen that when it is used flat side down it becomes a lancet; with its curved back down it

acts as a wedge or probe in separating the tissues or raising up the skin. When pushed along, arrow-shape, either edge becomes a good cutting knife, acting like one blade of a pair of shears. When held with the flat face towards one it makes a serviceable knife. In skillful hands it could easily be used to extract arrow points from wounds. These tools are far from numerous. Fig. 47 shows a much larger one, with the back much less ridged, from Wolcott, which shows the polish of very great use.

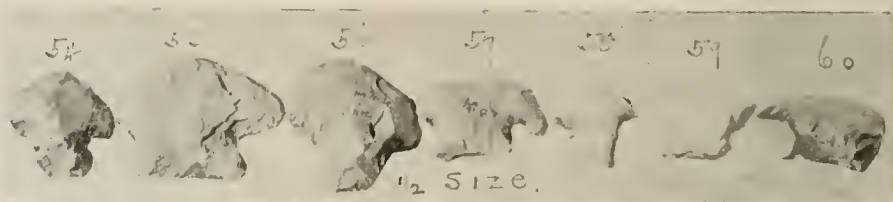


SCRAPERS.

Fig. 48 gives another specimen. Fig. 50 gives a typical scraper fit for working both wood and hides, whose reconstruction has been attempted in Fig. 51. Other forms of scrapers are shown in Figs. 52 and 53.

BUNTS.

Something like the last described scraper, only not having the edges sharp or bevelled, but always blunt are many pointless arrow heads. They are thought to have been used to kill small game without breaking the skin. "Jones says that crescent-shaped arrows were used by the southern Indians for shooting off birds' heads."* We show several examples of these so-called bunts



BUNTS

or bunters; Figs. 54, 55, 56. Figs. 57, 58, are the arrow points presumably used for shooting off birds' heads. Fig. 59 represents a chisel-shaped quartz arrow point from Compounce, with very sharp edge, which is of great interest. Fig. 60, an agillite specimen from Farmington.

PERFORATORS.

Next in frequency to arrow and spear points upon our old village sites, we find perforators or drills. The Indian made two general types of perforations in stone. When he wished to bore thick objects as pipes or banner stones and beads, he made a cylindrical bore, usually of the same diameter, all through the object. These bores are thought to have been made with hollow horns or cane and reed stems, with the aid of sharp sand. Concentric rings may be seen in many such perforations. Again, unfinished objects often have incomplete perforations whose condition shows that the drill was a solid tool. Many pipes seem to have been gouged out, but by what tool we cannot say. The most common form of perforation, however, is a conical bore, which usually is made from both sides of the stone being worked. These holes meet at an angle about the center of the stone, and the opening is usually near one side of the perforation, showing that the drill was worked in obliquely from each side. In more carefully-finished objects the center of the hole is later widened so that the whole diameter is more nearly equal, but only in a few does the peculiar conical appearance of the bore disappear. Some tools show a conical bore made entirely through from one side. Some investigators have doubted the possibility of drilling hard stones with such drills as have come down to us. For many of them are of such fragile material as red sandstone, shale and slate. Dr. Abbott† pictures a sandstone object, of which he says: "By the aid of two stone drills we completed the perforation; accomplishing it after eleven

* "Fowkes Stone Art. 13th Annual Report Bureau Ethnology, p. 168.

† Stone Age in New Jersey, p. 326. Fig. 159, Smithsonian Pub., 394.



PERFORATORS.

hours of not difficult, but rather tiresome labor." Two drills were used, one of jasper and one of slate. "The latter drill is of slate and comparatively soft, but it did not wear away more rapidly than the jasper specimen." We illustrate a number of typical forms from our valley. Fig. 61, one-half natural size, is a double drill made from a moss agate. It seems almost incredible that such a tool could have been made from so hard a stone. It is one of the most beautiful objects we possess. Found in Farmington. Figs. 62, 63, 64, 65, represent drills with wide, arrow-like bases. Fig. 66 is a perforator made by rubbing. Figs. 67, 68, 69, 70, 71, 72, slender spear like tools, which were doubtless used as needles and awls as well as drills. Figs. 73, 74, represent large based perforators. Fig. 75, a small, very hard drill, resembling those from the Pacific coast. Some of these drills show the peculiar attrition polish that we noticed upon scrapers, and were doubtless used to perforate skins. They may have been hafted. Fig. 76(c), one-half natural size, presents a drill-shaped tool that the writer believes to have been hafted and used as an awl to unravel stitches in skin robes, or possibly in fabricating baskets. It is not straight enough for a drill. Certain flaked tools of much larger size, whose edges are bevelled off sharply in opposite directions have been called reamers. When these were revolved to the left they would cut with both edges in succession, but the writer cannot understand what they were intended to cut. Fig. 77 shows a very fine example from Farmington.]



PERFORATORS.

INHUMATION AND INCINERATION IN EUROPE.

BY THE MARQUIS DE NADAILLAC.¹

All known facts show that in Europe inhumation and incineration, two such different methods of disposing of the human body, were in use at the same time among the same peoples during the age of iron, the age of bronze and, in some cases, even during the neolithic period.

The Iberians, the oldest inhabitants of Western Europe, buried their dead and punished notable criminals by the cremation of their bodies.

The Gauls burnt slaves, dependents and horses that they might follow their master into the life beyond.²

In the glorious days of Rome cremation was general. In the eyes of the aristocracy, however, the destruction of the human body by fire was a humiliation. By burial this aristocracy distinguished itself from the lower classes and from peoples subjected by conquest. We know that Scylla, of the illustrious Cornelia gens, was the first of his race to be cremated.

It is now generally admitted that the rapid extension of cremation was due to the Celts. We find it from Greece to England, from Etruria to Poland and Russia. Bodies were burnt and those who were not rich enough to have the entire body cremated, contented themselves with burning the head and the arms—hence partial cremation.³

But everywhere the two rites are side by side. Here, inhumation is the most employed; there, cremation. Why this difference among the same people, at the same epoch, in the same place of sepulture? Does it imply a diversity of origin, of caste, of social or religious condition?

The answer to this question is impossible in our present state of knowledge. Moreover, it should be different according to the country, the people, the epoch under consideration. Everywhere different influences have acted under different surroundings.

Brittany offers a striking example. The Dolmen of Mt. St. Michel and the dolmen of Tumiac are but a short distance apart; both date from the neolithic period; they were built by the same race, probably during the same epoch. At St. Michel we find incineration;⁴ at Tumiac, inhumation.⁵

M. du Chatelier takes us to the other extremity of Brittany. Out of 145 megaliths, dating from the stone age, he reports 20 inhumations, 72 cremations, 31 containing charcoal alone. In 22 no conclusions were possible.

We see a similar state of affairs near the town of Reims, in the Puy du Dome,* in the Marne and in a number of other of the French Departments. The rule is not universal, however. At Calvisson (Gard), for instance, we find neolithic burials embracing cremation only.[†]

In Scotland we are able to cite only the celebrated cairns of Caithness. In them at the same time are met with, without a clue to explain such characteristic differences, the burial at length; the skeleton flexed upon itself; and cremation.

¹ Translated by C. B. Moore. Reprint from the *Journal of the Academy of Natural Sciences of Philadelphia*, Vol. XI, Philadelphia, 1897.

² Caesar, *De Bello Gallico*, L. VI, C. XIX; L. I, C. XIV; L. VII, C. III.

³ *Handbuch der Deutschen Mythologie*—d'Arbois de Jubainville, *Rev. Arch.*, 1891, Mar.—April.

⁴ R. Galles, *Rapport sur les fouilles du Mont St. Michel en Carnac*.

⁵ L. Galles, *Fouilles du tumulus de Tumiac en Arzon*.

* Cartailhac, *Mat. pour l'hist. de l'homme*, t. IV, 1re Serie, p 267; t. XII, 2e S., p. 145.

† *Ass. Scient. de France*, Marseille, 1891.

In Italy results are startling. "When you find," says Baron de Duhrn,³ "the two forms of sepulture together, it is because two populations were living side by side, and the predominance of one or of the other indicates that of the population practising the prevailing rite." In Italy, inhumation was practised at first; incineration appears with bronze; next inhumation returns with the oldest Etruscans. Incontestable proofs of this have been found at Alba, at Chiusi, at Pisa and at different points in upper Italy. At Felsina, the ancient metropolis of the Etruscans, the present Bologna, burials by incineration and burials by inhumation were contemporaneous. A like state of affairs existed at Certosa, at Marzabotto, at Villanova. In the necropolis of Villanova inhumations predominate;⁴ at the Marzabotto the two forms are of equal occurrence.⁵

Various Austrian provinces furnish indisputable evidence. At Santa Lucia; at Rosegg, in the Drave valley; at Rovische, in the Basse Carniole; at Vermo, in Styria; at Watsch; at San Margarethen; and especially at Hallstatt, which has given its name to a period whose beginning dates back 2000 years at least before our era; we constantly see the two rites in concurrent use.⁶ The relationship between them varies only according to localities. At Watsch, for instance, with 200 tombs where incineration was employed, there were hardly a dozen where skeletons were found. But nothing would seem to indicate that these latter were destined for people of a lower class; while they were not protected by great slabs of stone like the others, their mortuary equipment was richer and the objects of bronze gave evidence of a higher art.⁷ At Rovische researches yield at times quadrangular cases of stone, each enclosing an urn filled with the ashes of the dead, or a skeleton stretched at full length, the head to the east, with an urn at its feet, clasps on the chest, rings on the fingers. At Santa Lucia, on the left bank of the Idria, at its point of union with the Isonzo, 1200 tombs, previously unopened, were discovered. Incineration had been employed in them in by far the greater number.¹

Investigations were begun at Hallstatt in 1846. Nowhere, according to Baron de Sacken, who for a long time directed the work, has there been observed in the same region modes of burial so diverse and in part so remarkable—the incineration of bodies, the mingling in the same tomb of bodies burnt and bodies buried—nowhere in fine has there been observed on so great a scale a mixture of types belonging more particularly to the bronze and to the iron age. According to the latest information, we learn that 993 tombs have been searched. Of these 527 show burials, 453 cremations. The funeral trappings were well preserved as a rule. There were discovered 640 objects in gold, 5574 in bronze, 593 in iron, 270 in amber, 73 in glass, 1243 in terra cotta.² In those tombs in which burial was practised the dead were laid out clothed in their garments.

If we look toward Germany we see similar cases. In tumuli near the lakes of Ammer and of Staffel, in upper Bavaria, which are of the latter Hallstatt period,

¹ *Remarques sur la question Etrusque*, Berlin, 1890.

² Count Conestabile, *Rev. Arch.*, t. XXVIII, pp. 253, 320.

³ Count Gozzadini, *Atti e Memorie di Storia dell' Emilia*, nuova serie, t. VI, p. 1.

⁴ Hochstetter, *Die neueste Graberfunde von Watsch und S. Margarethen und der Culturkreise der Hallstatt Periode*.

⁵ Notably there have been found many situlæ and plates from sword belts, bearing in repousse military, religious, or civil scenes, a regular album of the persons buried. A. Bertrand, *Les Celtes dans les Valleys du Po et du Danube*.

⁶ Hochstetter, *VII Bericht der Prahistorischen Commission*. Wien, 1884.

⁷ *Mitth. der Anthropol. Gesellschaft in Wien*, 1887-8. Dr. Hærnes, *Revue d'Anth.* May, 1889. A. Bertrand, *Rev. d'Etnol.* 1883.

we find, out of 121 tombs, 44 given to incineration, 18 to inhumation, and 59 which show no trace of bones or of fire, though they contain the same mortuary deposits as the others. Later, in tombs attributed to the iron age, all the bodies are cremated.

In Hesse, Thuringia, Franconia, in the countries forming the extreme west of Germany, inhumation was the general rule during the entire stone age.³ In Mecklenburg—an exception, no other example of which I know—men were buried, women incinerated.

In the tombs of Prussia and of the grand duchy of Posen the presence of skeletons and of urns filled with ashes proves the existence at the same time of the two methods of disposing of the dead.⁴ The tumuli of eastern Prussia, notably those of Birkenhof, tell a different story. They enclose a varying number of stone cysts containing urns with incinerated bones. Each cyst was surrounded by a circle of stones, and often a larger circle of stones on end encircled several cysts. These urns, made without the use of the potter's wheel, frequently had two handles. Investigation yielded many objects in amber, but on the other hand articles of bronze, and of iron especially, were of the greatest rarity.⁵

Scandinavia shows a duplication of the points noted in the north of Germany. At divers places are remarked the simultaneous use of the burial rite and of destruction by fire.⁶

In Bosnia the gromilas, or tumuli, go back to the Hallstatt period. Cremation, however, is rare. Of 140 tumuli recently investigated, but 11 showed complete incineration, and 18, where the burning was partial. In all the others the body had been buried.⁷

Research in different portions of Russia leads to the same conclusions. Mr. Radimski has opened 530 graves in the necropolis of Jezerina. Three-fifths showed incineration; but everywhere the two rites were apparent in neighboring tombs and sometimes even in the same one. The majority of mortuary deposits belong to the epoch of la Teene, but some were of the date of Hallstatt and even of the Roman period.¹

The results obtained by Mr. Zavinetvich in the province of Minsk, White Russia, show that inhumation predominated with increasing ratio in proportion as one approached the Dnieper.²

In the country formerly belonging to the Jadzvinques the presence of the two mortuary rites is noted.*

In all Europe we are confronted with two very different forms of sepulchral rites. We cannot tell their origin, we know only that cremation by degrees disappeared before the progress of Christianity. Complete discontinuance, however, was slow, for we have an edict of Charlemagne, of the year 789, punishing with death those who continued to burn their dead according to the pagan custom.

³ W. Schmidt, *Cong. Anth. de Paris*, 1878, pp. 285-7.

⁴ Kohn u. Mehls, *Materialen zur Vorgeschichte des Menschen im Ostlichen Europa*.

⁵ O. Tischler, *Ostpreussische Grabhugel*.

⁶ W. Schmidt, *l. c.*

⁷ *Fouilles des galgals prehist. de Grassinac*, *L'Anthropologie* 1896; p 213.

¹ *L'Anthropologie*, 1894, pp. 472-3.

² Baron de Baye, *Congres de Wilna*, 1893.

* *Congres de Moscou*, 1892, p 223.

MORTUARY CUSTOMS OF THE PUGET SOUND INDIANS.

I have written this article on the past and present customs of burial among the Indian inhabitants of the islands of Puget Sound with a view of raising the question as to whether these customs throw any light on the subject of the condition of progress or decline of these natives. I am of the opinion that they have been in a state of decline since before their contact with the whites, and hope this subject will be taken up by those capable of discussing it thoroughly.

The present Indians inhabiting these islands—especially the San Juan group—dispose of their dead in the most labor-saving manner possible, unless they were to throw them into the sea. A convenient sand spit or shell heap is often used, wherein an excavation can be made with little toil. Or if death overtakes one of their number and no sand bank or shell heap is near at hand, a cave or cleft in the rocks is utilized, and in there the good Indian is laid to rest, with the roar of the sea and the dash of the storm wave for his requiem.

I have found nothing buried with these dead except their clothes, and perhaps bark mats in which the bodies were wrapped. Another mode of burial long since obsolete, and of which the oldest Indians now living here claim to have no knowledge—not even traditional—was to select some rocky knoll near the water's edge, where the surface rock had become more or less disintegrated by the action of the elements and could easily be removed, and there, when a body was to be disposed of, an excavation was made to the depth of twelve to eighteen inches by removing some loose rocks, in which the corpse was then laid and covered with wood, brush, etc., and then stone piled over the whole, making an oblong mound, the torch applied and the body cremated.

In these graves I generally found ashes and charred wood and bones, the larger bones not being entirely destroyed; sometimes portions of the femur and sections of the spinal column remaining. I only succeeded in securing one cranium, and that one was in bad condition.

No ornaments, utensils or weapons, except one knife, was found in any of these ancient graves, and that one was crescent-shaped and made of thin slate stone, five inches long by one and one-fourth inches across the center, and, excepting the point being slightly broken, was in perfect condition. It was no doubt left there by accident instead of design.

In some of the cemeteries here the graves can be descried scattered thickly and indiscriminately around, nearly all of them having settled to the level of the surrounding surface; but occasionally one still remains a foot or more above the ground where a greater number of stones had been used, supposedly to mark the remains of the head man or chief.

The tombs, however, that have interested me most are mounds that are frequently found on the shores of these islands, usually on prominent and picturesque headlands, as if selected by one who had an eye for the beautiful and taste for the sublime. They were constructed, too, with a view to endurance, and they stand today solid and substantial, bidding defiance to time and tempests. Great forests of pine and fir have grown up around and over them, their roots piercing the crevices of the rocks, intertwining with the bones of the forgotten braves who have left no data of the times or events of their existence.

From the manner in which I found the few charred or partially burnt remains in some of these tombs, I judged that the subject of burial was placed on the ground in a sitting position, then combustibles placed around it, and then a wall of stone laid; the rocks composing the mound were placed as much as possible on the edge, and when raised to a sufficient height above the body a huge boulder was placed on the top and the combustible matter inside ignited. As the wood was consumed and the remains cremated the pile settled to the center. Many of these tombs are from four to six feet in width and two to three

feet high at the corners. I found nothing inside but ashes, charred wood, and sometimes a few of the larger bones and vertebrae, but no portions of the skulls, and nothing in the way of implements or ornaments.

The largest of these mounds that I have found is on San Juan Island, at the north end of it, overlooking Griffin's Bay. This mound is located on a headland from which the view is magnificent. The bay here stretches away ten miles to the southeast to San Juan Pass, while to the south loom up in the distance the snow-capped Olympic mountains in all their majestic grandeur. Surely the Indian who selected this site for whatever purpose it was intended was far in advance of the common "Siwash," who comes today to dig clams on the beach five hundred feet below. The mound mentioned was fifteen feet square, four feet high at the corners, which were well carried up, five feet high in the center, and stood about square with the cardinal points.

The space inside, which was very small on account of the settling inward of the pile, contained nothing but a very few ashes mixed with the soil.

On the north side of this headland, bordering a clam beach, is a shell heap and other indications of an ancient village site. Much of the shell heap has been washed away, as the sea when rough at high tide cuts away the shore line. On this beach I found a quantity of chips and refuse matter, indicating a workshop, which no doubt was, when in operation, on the shore line above the beach, but, as the shore cut away, was washed down below the water line at high tide. Of this workshop and the specimens of the stone work I picked up in the vicinity, I may write of in a future article.

W. H. THACKER

Friday Harbor, Washington.

[From Hon. William H. Thacker we received by mail a few sample specimens of the fragmentary bones he mentioned in his letter published in the February number of this periodical, as having been found near the base of the old shell heap he described, situated on Lopez island, in the Vancouver Archipelago. We forwarded them to Professor Henry C. Mercer, of the Pennsylvania University for identification, and in due time received the following courteous answer, embodying the desired information:

"The large bone, marked No. 1, too much broken for certain identification, is possibly that of *Bison Americanus*. The sign of sharpening at the point shows that it has been used as a gouge or chisel implement. The breaks at both ends slightly obscure its original contour, but the handle end has also been worked down by cutting, and its sides show knife cuts, either by stone or metal blades.

The one marked No. 2 is the upper left humerus of the coyote (*Canis latrans*), most probably; but possibly the same bone of an aboriginal dog domesticated by the Indians, or of the European *Canis Familiaris*, introduced by the whites.

No. 3 is probably from the leg bone of a deer, *Cariacus*.

Nos. 4 and 5 are also fragments of bones from the limbs of the deer. The last three specimens have been split with stones by human beings for the purpose of extracting the marrow. No. 3 shows signs of scorching. All the specimens but No. 2 are too fragmentary for more minute identification.

Mr. D. N. McCaddin, of the Academy of Natural Sciences, assisted me in coming to these conclusions. Hoping that they may be of service to you, I am, with kind regards,

Very sincerely yours, etc,

(Dictated.)

H. C. MERCER.

This effectually disposes of any lingering suspicion that the split or hacked bones recovered from that Pacific coast shell heap may have been those of human beings, and thus testifying to aboriginal practices of cannibalism.—Editor.]

DELAWARE INDIAN VILLAGE SITES—NO. 7.

About one-half mile west of the Shawnee village site of Pechequeolin, on rising ground, were a number of rock shelters which were nearly all destroyed before the writer saw them. These rock shelters or small limestone caverns had no doubt been used by ancient man for ages. They were utilized as watch-towers by the Shawnee Indians; for they overlooked a large portion of the Delaware Indian camp site and town, across the river Delaware in New Jersey.

The Shawnees, being of a treacherous nature, were rather more vigilant than their more easy and indolent, though more powerful guardians, the Delawares, or Lenni Lenapes.

Enough remains, however, to verify the account given of them by the aged owner to prove that they had been utilized by prehistoric man as lodges, or dwelling places; as marks of fire along the side walls, composed of ledges of limestone, were still visible as late as 1860. Several rude war clubs, discoidal stones and a few mortars were found in the immediate vicinity, as well as a few stemmed arrows of argillite. There were four separate exposures of limestone on a line, located on the sunny side of the hill, facing the Indian village site on the river bank. The ledges of magnesian limestone in which these small caverns existed have been mostly converted into lime for agricultural purposes, and all that now remains are small areas overgrown with stunted oaks, sycamores and brush. It is probable that at the time these caverns were occupied by primitive man, the Delaware river, or a portion of it flowed within two hundreds yards of these "lodges" or rock shelters. The indications here denote that after the depositions of the post-glacial floods had ceased an island several miles in length and about three-fourths of a mile in width existed during a long period of time, dividing the waters of the river into nearly equal parts. Numerous implements of stone, such as axes, celts, paint bowls, pestles, hammer stones, etc., are found on this glacial debris. On the northern borders of these rock shelves in the ancient channel of the Delaware river must have been once an interesting freak of nature. At the present time may be seen a large cavity into which flows a good-sized stream of water. This stream, no matter how greatly swollen by rain or melting snow, is swallowed up at this spot and is seen no more. No doubt a large cavern exists here underground, the extent of which is yet unknown. When the Delaware flowed over this spot it must have formed a good sized if not formidable whirlpool, which to the untutored mind of savage man remained an unsolved problem.

Five hundred yards west of this natural curiosity are the remnants of a large-sized Indian camp site and implement manufactory or workshop. The debris extends along the small stream which empties into the sinkhole or whirlpool, a distance of fully half a mile to a marshy piece of ground from which issue several large springs and which form the source of the stream. No pottery is found here, but numerous finely finished arrows of jasper, argillite, chert, quartz and a few of chalcedony, pitted hammer stones and smooth ones of glacial gravel, also numerous smooth stones of slate and steatite have been picked up. This sub-camp lying at the extreme north end of the Shawnee town, with its numerous observation and picket camp sites, was no doubt occupied by a large force of Delaware Indian warriors who were placed here to watch their above troublesome proteges.

Nearly half a mile due west, elevated some four hundred feet above the latter sub-camp, are the remnants, implements of another observation or picket camp.

¹In the early part of the present century a number of apple and native pear trees were growing here which, according to tradition, were planted by the Shawnee Indians. The last of the pear trees was cut down about 1860, measuring over two feet in diameter, but bearing very little fruit.

The camp site is admirably located, having an extended view of the Delaware river and adjacent country, also of the larger Indian camps for a distance of four or five miles. The implements thus far discovered consist of arrows, spear heads, scrapers, net sinkers, pestles and pitted hammer stones. The arrows are of argillite, stemmed and neatly made. We found also several arrows and spear-heads of white quartz². Near this site are several fine springs of good water. A small stream of water issues from the ground forming the source of the Brandywine creek which at a distance of several miles south empties into the Durham creek.

The red men who were the lords of the soil at the time of the settlement along the Delaware and its tributaries were known by the general appellation of "Iroquois," a nation, or a confederacy, whose power extended from the Atlantic to the Ohio river, and from the St. Lawrence to the Potomac. A people of indomitable energy, possessing an imperishable love of liberty. Their warpaths and well trodden trails leading through dense forests oftentimes became the highway for neighboring jealous or quarrelsome tribes to spy out the hunting grounds and cornfields of the contiguous tribes and lay them waste, which created a necessity for the more peaceful tribes to be wary; hence the necessity of the numerous picket or observation camp sites in this vicinity. An historic and well trodden Indian trail led by this finely located prehistoric camp.

CHARLES LAUBACH.

Riegelsville, Pa.

PREHISTORIC RELICS FROM SAN NICOLAS ISLAND, CALIFORNIA

I enclose with this a printed catalogue of a collection of very interesting prehistoric art remains obtained last summer on San Nicolas island, where I am sure we secured the contents of an ancient aboriginal workshop. I have made archaeological investigations all over this country for many years; but have never before found so complete an outfit of the implements and ornaments of pre-Columbian man as this. I will call attention, first, to the pick-shaped tools of stone, which, in my opinion, were used chiefly to quarry stone for mortars; and perhaps for various other purposes, just as we probably would use them were we placed in condition of the primitive Indians, without the knowledge of metals. They vary in size, from one and a half to twelve inches in length, and in weight from one ounce to ten pounds; all made, of uniform shape, from very hard stone that is found in form of water-worn boulders all along the coast line near the water's edge. It is difficult to conceive how these implements were so skillfully shaped and finished with stone tools alone. At least twenty of these picks were recovered, with about as many drills and files, constituting the bulk of stone objects; but in close proximity to these were a quantity of entire abalone or "ear" shells (*Haliotis Tuberculata*) with many more partly wrought, and a multitude of fragments and rejects, as well as unfinished ornaments, mostly fashioned into broad hooks—which many believe to have been designed for catching fish. In my opinion they were all ornaments and worn for personal adornment in connection with strings of small shells, either polished or in their natural state. The process of making these shell hooks, we see by the many in different stages of

²Since writing this paper I found on this camp site a fine bow-scraper of jasper. The notch in it is an inch wide at top, tapering to half an inch. The stone is about two inches wide, one inch thick at its base and is chipped tapering, so as to form a convenient implement for scraping or polishing. A dense undergrowth of hazel and persimmon wood abounds here, preventing a closer investigation. No doubt many important and instructive relics will yet be unearthed at this spot, as we are here at the source of the historic Brandywine, along which were discovered some very important and instructive implements relating to the antiquity of man in the valley of the Delaware.

manufacturing, was as follows: The shell was first cut, or broken into a disc, then perforated in the middle by a blow with the pick; the drill was then inserted and the perforation made large and regular in size; and next, the file was used to open the ring made by the pick and drill and cut out the angle forming the required hook. The accompanying cut illustrates this manipulation; showing, first, the shell in raw state, then the disc; the hole made by the pick; this enlarged by the drill, and then the work of the files in finishing the ornament. This will give a fair exhibit of the ancient artisan's tools and products of his industry.* Besides the shell work we also found drilled objects of stone and bone; and in the same deposit, or accumulation of workshop debris, were a large quantity and variety of bone implements which, from their forms, may be named awls, knives, needles, perforators and punches. Among these are perineal bones of the male seal, some of them sharpened to a point at the smaller end, and the ribs of the dog or wolf, and some of these are obtusely pointed and creased at the end evidently for flaking stone in making arrow-points. Among these was an Alaskan knife, a sharp stone shaped like a large, broad arrow-head, set in a wooden handle and fixed in place with asphaltum. There were also a goodly number of sharp-edged flakes and clipped blades of flint and obsidian, of all sizes, that probably had been used for cutting up seals and fish, together with at least a dozen stone rings, and more than two dozen round or oblong stones with grooves cut around them longitudinally, varying in size from one to three inches in diameter, and of unknown use.

I write in haste, but will add that I have just read, in the February number of the *American Archaeologist*, Mr. G. M. Sherman's paper on "So-called Drills and Perforators," and will say that I fully concur in his theory of their use.

South Pasadena, Cal

HORATIO N. RUST.

[San Nicolas island is a barren patch of comparatively level rock and sand, four by eight miles in extent, eighty miles off the coast of California, southwest of Los Angeles, and is almost destitute of vegetation, and so desolate and wind-swept the greater part of the year as to be unfit for human habitation. The island has some fresh water, and at one time supported quite a numerous population, as is evidenced by the many implements of stone, bone, shell and wood that have been found there in the graves of their dead and on the desert surface. Among these are many objects of steatite and serpentine, minerals not found in situ on the island. The nearest known source of steatite is on Catalina island, fifty miles distant, and that of serpentine is at Piedras Blancas. The large picks mentioned in the foregoing paper were no doubt used in quarrying steatite and shaping it into cooking vessels; the smaller ones were employed in fashioning shell ornaments. The collection mentioned by Major Rust comprises several hundred specimens, including stone mortars and pestles, whale and seal teeth, steatite bowls, bone whistles, awls, needles and knives, two human skulls and one of the dog and one of the fox, stone rings, grooved balls, net-sinkers and a quantity of other rare and curious objects. We learn that the collection is offered for sale to defray expenses of the exploration expedition. Those desiring to secure such valuable art remains of an extinct people will do well to address Major Rust at once.—Editor.]

*We very much regret that the specimens sent by Major Rust, from which the illustrations he refers to would have been made, failed to reach us in time—in fact, have not yet arrived. We hope to receive them, however, in time to have them electrotyped for our next issue.—Editor.

SURVIVALS OF THE STONE AGE.

To the Editor:

Your letter of last December 24th was duly received, and I have not forgotten your request for information regarding survivals of the Stone Age among the Indians of this northwest coast. This knowledge is becoming more obscure each year, and it is strange how soon all accurate recollections of those ancient customs die out among the aborigines. Mr. Mackay, who has been on this coast for over forty years, has kindly given me some notes on this subject, which I now forward to you, with the hope that they may prove of some interest to the readers of your valuable publication.

A. W. VOWELL,

Superintendent Indian Affairs, B. C.

A FEW FACTS RESPECTING THE SO-CALLED "STONE AGE," AND SOME OF THE STONE IMPLEMENTS
USED BY THE INDIANS ON THE NORTHWEST COAST OF AMERICA IN EARLY DAYS:

Stone implements were made from different kinds of rocks, viz: Hammers from granitoid rocks; bits for adzes, axes, chisels and awls from serpentine and jade; arrow-heads, spear-heads and flakes or knives were fashioned from obsidian, basalt, chalcedony or hard, tough rock having a conchoidal fracture, the latter attribute being essential. Sandstone and sharp sand were used in making even surfaces on wood and on stone implements by attrition. The jade implements were cut from blocks of rock, by means of quartz crystals, into slabs of the required thickness, and were afterwards sharpened and ground into shape on sandstone, and finished with fine sand and water on a porphyry slab or with oil on a slab of silicious slate. The arrow-heads and other implements made from hard material having a conchoidal fracture were first roughly shaped by impact, made with a hard stone hammer on hard porphyry, or other hard and tough rock; the finishing was done by an implement made of deer's horn, the hardest part, that nearest the skull, being preferred; deep notches of different sizes were cut into this implement which was used after the manner of the ordinary glazier's tool to complete the shape of the article being made, and to trim its edges.

Sandstone of different degrees of hardness and fineness of grain were used with sand and water to smooth woodwork; stonework and woodwork were afterwards polished by rubbing with dog fish skin, the stems of the equisetum, and infusorial and other silicious earths, and fancy pieces of stone for ornaments were finished by rubbing with washed ochre and oil held in dressed deer skin.

Felling Trees With Stone Axes: Stone implements were only partially used in the process of felling trees; the Indians first removed a strip of bark circularly round the tree at a convenient height from the ground by means of wedges, the principal wedges used being the stout tines of the wapiti horn, supplemented by wooden wedges driven by stone hammers; when the wapiti horn could not be had, the hardest and toughest wood to be procured was used instead; at intervals round the tree stones were piled to the height of the barked circle, forming a series of platforms around the tree, the upper stones being flat and sloping inwards towards the tree. Fires were built on these platforms against the bark surface of the tree, which were small and constructed of dry pitchy wood, which burned quickly; as the wood became charred the burned parts were removed by means of stone axes and other stone implements; as the fire extended into the tree the heated stones were removed inwards, the hottest parts of the fires being always kept against the wood of the trunk. The stone axe used in the early part of the process was gradually replaced by a stone implement having a long wooden handle. With this tool in hand the Indian

went from fire to fire removing the charcoal from the tree at the back of each fire, thereby exposing fresh surfaces to be charred; the most attention was paid to the fires on the side of the tree in which direction it was intended that it should fall; when felled the tree was divided into required lengths by means of fires and stone implements. The fires were prevented from extending in a wrong direction by protecting the wood with wads of moistened clay. The shaping of blocks or lengths of wood was accomplished by means of wedges of stone, horn, and wood, and on the more elaborate parts stone chisels were used. In hollowing a tree or log for the purpose of making a canoe, fires were built at intervals of from three to four feet along the length of the log. Stones were kept heated in the fires, the charred parts of the log were removed, and fresh surfaces continually exposed to the action of the fire; these heated stones assisted materially in charring the wood which was intended to be removed; the unburned spaces between the fires were wedged off; and after hollowing the log the outside of the canoe was shaped. The surface was then finished by means of the stone adze and by burning with flambeaux or torches of pitchy wood. The vessel was then three parts filled with water, heated stones were thrown into it, and the water thus warmed, together with the steam raised, made the wood pliable and tough in which condition stretchers were applied to widen the gunwale parts, more especially at the waist, giving the vessel her permanent form; after which fixed thwarts were placed where required.

Logs for the frames of the buildings were also gotten out in the manner already described. These frames supported the walls, which consisted of boards split from large cedar logs to the thickness of about two inches and afterwards smoothed with the adze. The roofing boards were hollowed to the depth of one inch, excepting near the edges, where a ridge the full original thickness of the board was left, the roof being composed of two courses of such boards, the upper course covering the seams between the boards of the under course. They were left movable to let out the smoke as required.

I beg to submit the above facts, hoping that they may be of some service.

J. W. MACKAY, Chief Clerk Indian Office.

A. W. VOWELL, Esq. Indian Supt. of British Columbia, Victoria, B. C.

CORRESPONDENCE.

Editor of the American Archaeologist:

As a reader of the *Archaeologist*, I have been interested in the several accounts of the methods employed by the Indians in making flint and obsidian arrow-heads, but I have not noticed in *The Archaeologist*, or in fact anywhere else, any reference to the making of the arrow shaft, which must be made just right, as the alignment of the shaft must be perfect to ensure a perfect arrow. Among the tribes of the Great Basin I have witnessed the process of manufacturing them—quite interesting, if very simple. The arrow shaft is made by the squaw. She cuts off the young growth of willows of suitable size and length, as many as she may wish—two or three dozen or more. She then first removes the bark, carrying with her this collection of embryo shafts wherever she may go. At every opportunity she has, at rest by the trail side or in camp, she engages in the straightening process. This is done by biting them. Every stick passes between her teeth again and again, until every crook, large or small, has been eliminated. By the time this elimination is completed the stick is thoroughly seasoned and as smooth and almost as hard as bone. The point is attached to the shaft by splitting the latter at the end, introducing the former in the cleft thus made, then wrapping thoroughly with animal sinew, the point becoming quite immovable when the wrapping becomes dry and shrunken.

To feather an arrow—a very necessary part of the implement—the vane is stripped from the wing feather of any large bird and is attached to the feather end in a spiral course. And thus, with the point, shaft and feather the arrow is complete.

Virginia, Ill.

WILLIAM EPLER.

To The American Archaeologist:

There is a good story in connection with the alleged find of imitation pottery among a lot purchased at Charleston, Mo., in 1879, and noted under "Archaeological Frauds" in your journal of March.

"In the seventies the 'sang diggers' and 'swampers' of southeast Missouri found it more profitable to 'dig pots' at 25 and 50 cents apiece than to hunt skunk and coon skins at an equal price. The mounds and cemeteries were rifled and thousands of pots were bought by the country merchants, who parted with them 'at a long price' to rabid collectors from the north and east. It is a fact that several now well-to-do merchants of this portion of our state 'got their start' from this traffic—our museums of the east and in Europe well filled from this source. Mr. Danfoot, now one of Missouri's representative men, and who since then has prefixed 'Honorable' to his name, told me the story: 'There was then, as now, much speculation among the ignorant as to who these old pottery makers were, their lost arts; and so among the residents of Charleston at that time was a stucco worker, 'a genius,' adept in handling plasters and clays, and who took part in these arguments, but not on the impossible side; in fact, he claimed these pots, so-called works of art, were but poor examples of the ceramic art, and that 'he could make pots that were the equal of those dug from the mounds.' This assertion was derided, of course. Making no secret of his intentions, he soon turned out 'pots' that for material and workmanship were equal to the originals, and also forms that were verily 'truly and wonderfully made,' and such as gladden the hearts and eyes of collectors who are constantly on the lookout for something new. Combinations of turtles, frogs, alligators, birds and the human form and plain forms, he made and placed on exhibition for the benefit of those who ridiculed his work. No attempt was made to pass these examples as genuine, and after the novelty had worn off he presented them to Mr. Danfoot and others 'and made no more.' (The prevailing prices paid for originals would not warrant their manufacture.) Mr. D. at that time being extensively engaged in the sale of these things, placed these so-called counterfeits on the shelves among the others in his prehistoric show room. A party of Chicagoans and New Yorkers on a buying tour visited this show room and at a very stiff profit bought the outfit (without comment), lock, stock and barrel, and made arrangements to pack and ship the stuff next day. Mr. D., whose conscience troubled him a little that evening, took out and put away these counterfeits, and the buyers next morning missing them, demanded that they be returned and go with the collection, or the sale be off. Not wishing to lose a good thing, their wishes were complied with 'without comment.'"

And this is the way the so-called counterfeits of Missouri mound builders' pottery were discovered. For many years I have been familiar with every creek, bayou and mound and the people of the mound region of Missouri, and have beyond doubt seen and handled more of this ware than any others, and with the exception of the lot noted above, I can say no counterfeit pottery from that region exists.

St. Louis, Mo.

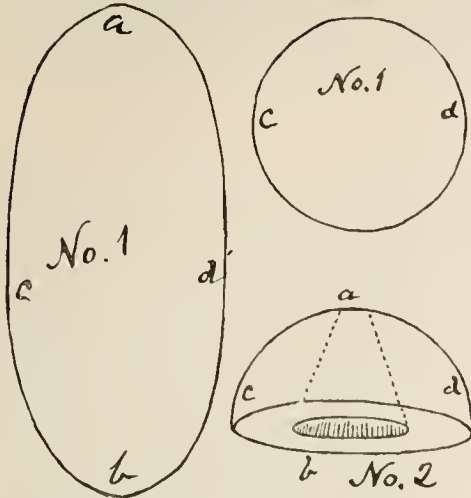
WILLIAM J. SEEVER,
Secretary Missouri Historical Society.

[Mr. Seever, after writing the above letter, having been reminded by the editor of the fact that imitation pottery, made in the vicinity of Cape Girardeau, Mo., was exhibited in the collection of Mr. George Mephram, in St. Louis, previous to the incident he relates, has added the following communication:]

In answer to your letter, I can reaffirm that I do not believe there ever was made any counterfeit Missouri pottery with the deliberate intention to defraud buyers or collectors. I am familiar with the history of the imitations you mention having seen them in Mr. Mephram's collection some years ago. There is—or rather, was five years ago, when I last visited him—a man in Union county, Ill., opposite to Cape Girardeau, Mo., who was operating a small pottery plant for the manufacture of earthenware vessels and fancy stoneware articles for commerce, from the clay of that locality. He made for Mr. Mephram, and also for Mr. Perrine, of Anna, Ill., a number of imitation mound pottery on models furnished by those gentlemen. He also copied, in stoneware, two human effigies found in St. Clair county, Ill., and afterward made a lot of German beer mugs, using one of those effigies for a model by cutting off the top of the figure's head and adding a handle. The work he did for these two collectors was not done to defraud, but at the suggestion and with the approval of men who should have known better; and it resulted in much harm. The collections of both Mephram and Perrine were sold after their deaths, and the spurious specimens went with the genuine, creating wrong impressions regarding the collections of honest persons. A few of the imitations of that Charleston, Mo., worker went to Calro, Ill., and from there were broadly scattered over the country. It is well that the truth regarding these counterfeits be widely known, for the protection of the genuine specimens.

WM. J. SEEVER.

To The Archaeologist:



Archaeologist success for 1898, I remain,
Horseheads, N. Y.

["Rubbing Stones" is the vague but commonly recognized name of these implements. They are supposed to have been employed in smoothing the inside of pottery vessels before burning. When in use No. 1 was held in the potter's hand, and No. 2—this specimen probably not entirely finished—was designed to have a wooden handle thrust in the opening through it. Gentle rubbing for some time with these polished stones and a small quantity of water gave the interior of the clay vases their regular, compact and smooth surface.—Editor.]

I enclose herewith rude drawings of two stone relics which I have in my collection, and would ask you to state through the columns of your paper their names and for what they were probably used. They are both surface finds.

The first, which I shall call No. 1, is a common field stone of fine grain and has a very smooth finish, though not glossy. It is 2.5-8 inches from a to b, and 1.1-8 inches from c to d. Part of it is of a black color, probably caused by fire.

No. 2 is a coarse-grained stone of a redish tint, shaped like a hemisphere, with a hole through the centre, the hole being much larger on the bottom side than on the top. It is 3-4 of an inch from a to b and 1.1-4 inches from c to d. It has no polish whatever, but shows where it has been rubbed against another stone to produce the rounded form.

Trusting that I have made my description plain to you, and wishing The
WARD E. BRYAN.

MICHIGAN (WEXFORD CO.) ARCHAEOLOGY.

Michigan is rich in pre-historic remains for the archaeologist who is a careful explorer. Because of its great bodies of surrounding waters and its many lakes and rivers, it afforded excellent facilities for transportation by canoes, while fish and game abounded.

As the country becomes cleared up of its brush and logs, where once stood its gigantic pines, a great many relics of the pre-historic races will be unearthed. Mounds are very numerous and prove their great antiquity by the immense trees which have grown on their summits. Earthworks are occasionally met with in different parts of the country. Some time ago I visited one of the earthworks which is situated in a dense forest near Boone, Michigan. It consists originally of a double circle of earth; but from the ravages of time only portions are visible, although some sections are visible for a distance of eighty feet or more.

It is situated on the edge of a spring in which pits twenty-two feet in diameter have been excavated presumably as reservoirs for water. The diameter of the entire earthwork is 215 feet. Pine trees from four to five feet in diameter have grown on portions of the rock. May not this have been used as a fort, or station, between the copper mines of the Upper Peninsula of Michigan and the South? In August, 1897, Delmar E. Teed and myself finished excavating a large mound we had been working on at spare times for two years near Cadillac, Michigan. We rode a distance of about six miles before breakfast (got up about 3 a. m.) on our wheels, and found the remains about 5 a. m. in the shape of a skeleton lying on its right side with head to the east and the face to the north, with the knees drawn up to the level of the head and hands over the face, and the face covered by a large sea-shell disc, with an orifice in the center for the nose to protrude through. This perforated shell was about 4 1-2 inches in diameter. Back of the shoulders of the skeleton were found a few charred bones (human?). The tarsal bones were slightly charred. The skull was well preserved. Two teeth had been extracted from the lower maxillary. The bones of the skeleton were small and slender, but the skeleton was not entire. The skeleton was covered by nearly six feet of earth from the top of the mound, and was about one foot below the level of the ground.

Arrow-heads are numerous in this vicinity, and are of many rare types and show excellent workmanship. The material of which they are made is principally flint, and

occasionally of jasper and chert, which must have been brought from a distance; but a great many implements were manufactured here, since I have found the unfinished arrows in the heap of chips. Copper implements are sometimes also found here. Pottery fragments are very numerous and are generally decorated on the edges, showing many beautiful designs.

CHAS. W. MANKTELOW.

Cadillac, Michigan.

American Archaeologist:

Your notes on page 83, March number, American Archaeologist, aroused my indignation. Could not the poetical glamour of Byron's Prisoner of Chillon and his time-worn footsteps in the stone pavement be left to us. It is singular the repairs should be made in time all these years until now. I am sure every contributor upon your list will be pleased to read the comments by H. N. Rust and also your article upon fraudulent implements and weapons. The unusual demand (of late years) for relics of stone, flint and pottery has so enhanced their value as to offer a large profit to unscrupulous parties to engage in their manufacture, and it is no longer a secret that regular shops have been established in which the various objects are being manufactured and surreptitiously sold to amateurs and others, some of whom are slow to acknowledge the fact. In point of quantity we find counterfeit "mound pottery" hailing from a point in southern Missouri, and also from Arkansas. There is also an extensive manufactory of pottery and pipes located in the Cumberland Valley, Tennessee. I believe there are two of these illicit dens in that region, judging from the styles of workmanship, and there are sufficient whole and genuine specimens to be obtained in all the above localities to furnish prehistoric patterns for the fraudulent output. So cunningly is this nefarious business carried on that even defects in the specimen are reproduced. Next we find red stone "pipes" (Catlinite) in endless variety of shapes. This material being easily obtained and very easily worked, is the basis of a large trade. The fantastic forms into which this stone is manipulated also assist in the manipulation of the customer. Some years ago a friend of mine brought me a present of one of these gorgeous pipes, for which he paid \$10, having a tag attached bearing the name of the Indian chief from which it was originally captured, etc. Fraudulent utensils of steatite are also numerous and well calculated to deceive. In the large number of relics brought to the Carnegie museum at Pittsburg for sale during the past two years, a great many fraudulent specimens have been detected, and it may be possible that some were accepted which almost defy detection. I have in my possession two spear points of obsidian, made by the Virginia firm you mention on page 81. These were furnished me by a middle man who, upon being told of the fraud, acknowledged the fact, but refused to give name or location. The most difficult to detect are copper implements. I have a number in my collection whose genuineness needs no corroboration. Yet such an unusual number of fraudulent copper implements have been offered for sale that I find it best to reject all specimens where an (ostensible) attempt has been made to clean and brighten or polish up, or remove corrosion. I write you more fully upon this subject because my duties in the museum in the department of ethnology (where about 12,000 specimens are on exhibition), required constant supervision to prevent the introduction of fraudulent relics. I hope some of your numerous readers may suggest a plan by which this rascality may be stopped.

Bellevue, Pa.

THOS. HARPER.

Editor American Archaeologist:

My Dear Sir—Give the following attention or otherwise as you may think best:

Through default of the mails the corrections of typographical errors in my article on "Turtle Backs," in the March number of the American Archaeologist, did not receive attention. "Ruin village" should have been Rum village, and the date "1832" should have been 1822.

D. R. LEEPER.

South Bend, Ind.

To the Archaeologist:

In the February number of your valuable publication, The Archaeologist, there is an item stating that George S. Younglove, of Waushara, Ohio, found a pipe, etc. It should be George S. Younglove, of Wautoma, Waushara County, Wis. If not too much trouble, please correct in next issue and oblige.

GEO. S. YOUNGLOVE.

Wautoma, Wis.

EDITOR'S DEPARTMENT.

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We have before noticed the munificent donation of money by Mr. Morris K. Jessup, President of the Board of Trustees of the American Museum of Natural History, in New York, for the purpose of defraying the expenses of a series of expeditions to the far Northwest to study the native tribes of that region, and search for evidences of the primal introduction upon this continent of the American Indian from that direction. The first of these expeditions, in charge of Dr. Franz Boas, Ethnologist of the American Museum, spent last summer in British Columbia. Drs. Boas and Livingston Ferrand specially investigated the languages, characteristics, traditions and customs of the Bella Coola and Chilcotin Indians east of Queen Charlotte Sound; and Mr. Harlan I. Smith and assistants dug into the old Indian village sites and cemeteries about Kamloops and Lytton, on the Fraser and Thompson rivers, and then excavated some of the ancient shell and refuse heaps on the coast. The party secured a large amount of interesting archaeological and ethnological material for the Museum which was placed on exhibition there in February last.

The second expedition has probably by this time left New York City, again in charge of Dr. Boas, with an increased staff of scientists, who will extend their observations as far as northeastern Siberia. Besides securing accessions to the already magnificent anthropological and other natural history collections of the museum, the object of the Jessup exploring expeditions is to further study the existing tribes of natives and of their ancestors as far as possible, on both hemispheres at their points of closest approximation, with the view of discovering what affinities, if any, of language, habits of life, mythology, physical conformation and arts exist, or may have in remote times existed, between the people of each side. The difficulties in the way of recovering reliable data upon these points, at this late day, are obviously very great. If the American Indians are in fact of Mongol origin their wide differentiation from the parent stock—constituting them in every particular a distinct race—necessitates a lapse of time to have effected so complete a transformation, so vast as to have obliterated all evidences of primal unity and of early migration. Consequently, it is not to be expected that very much of importance bearing upon this intricate problem will be learned from the characteristics or languages of the people now living there, who in the course of many generations have become more or less accultured by contact with civilization and modified by tribal intermixtures. The corps of very competent and experienced scientists conducting this great work are entering a broad and little-known field where several ethnological questions of long standing may be cleared up and set at rest. Among these is the repeated assertion that “the similarity between the American Indians and the Asiatics becomes the greater the nearer we approach Behring Strait,” and the common assumption of “successive waves of migration” in the past from Siberia to Alaska; and also the often-stated identity of religion and mythology of the natives on either side of the Strait.

Without frequent intercourse between the peoples of the two continents there for ages, it is not probable that any very marked similarity of those at present residing at any distance from the Strait can be noticed. And if such remote and long-continued intercommunication did exist we would suppose that some of the indigenous products of this continent, such as corn and tobacco, and primitive stone implements peculiar to American aborigines, as the grooved stone axe

and notched flint hoe, should have found their way into Asia in exchange for mechanical arts, and the use of metals known to the Mongolians and Tartars from well-nigh the beginning of their existence. The task assumed by the able naturalists of the Jessup expeditions is to closely observe the people; carefully search the country, and thoroughly investigate all prehistoric remains that may be found in that bleak region for evidences having any bearing upon these questions. This, we are satisfied, they will do well—without bias or preconceived theories—and science will surely be much enriched by the result of their labors.

We cannot satisfactorily answer the question, so often asked by our patrons, why it is that no contributions are ever seen in our pages from writers residing in the South—by "South," meaning the Gulf States—a region of our country exceptionally rich in remains of those American aborigines who had made the farthest progress in sedentary arts of any east of the house-building Pueblos. With the phenomenal advancement of those Southern States in wealth, educational facilities, literature and learning, there seems to be there an inexplicable want, or neglect, of interest in the science of archaeology. Since the death of the profound scholar, Colonel Charles C. Jones, of Georgia, author of the invaluable treatise on "Antiquities of the Southern Indians," who stood in the first ranks of American archaeologists, but few, if any, in all that territory—so far as the public knows—devote any time or attention to the study of our prehistoric people, or to the numerous and valuable antiquities of their locality. We are occasionally favored with fine descriptions of rare and curious Indian relics found in the Cotton States, but they are invariably written by citizens residing farther north who were temporary visitors there. About all we know of the many great mounds in Florida, and the surprising history of its ancient inhabitants revealed by explorations of those immense artificial heaps of sand and shells, has been imparted to us by Professor Wyman, of Cambridge, and Mr. Clarence B. Moore, of Philadelphia, who conducted their systematic labors there as if in a distant foreign country.

These statements are not made in a spirit of disparagement, but regret that the intellectual progress of our southern neighbors is apparently so confined to channels of material industries and enterprises as to practically ignore consideration of a science of the highest importance, though of no immediate commercial value.

The initial paper of this number on Comparative American Civilization was written specially for this magazine by the distinguished historian of the Pacific States, Mr. Hubert Howe Bancroft. It must command earnest consideration, not only because of the literary eminence of its author, but because also of its positive optimistic estimate of the American Indian. Mr. Bancroft's broad and rather novel generalizations in defense of a race almost universally regarded as degraded and retrogressive, the facts he has here cited (though possibly exceptional) that cannot be controverted, and their terse application to his argument, will arrest the thoughtful attention of every reader versed in history and interested in anthropology. There are but few persons of the present time who have more profoundly investigated the native American race than Mr. Bancroft, or whose opinions on all questions concerning the Indian's history, capacity, mentality and other characteristics, are entitled to greater weight than his. This subject, that he has at present but briefly reviewed, is practically limitless and admits of almost endless discussion yet, is one that cannot be too thoroughly examined, and we hope that he may find it convenient to favor our readers with further expressions of his views and conclusions, that, though all may not concur in, all will highly value and respect.

NOTES.

The west wing of the American Museum of Natural History, which is now being completed, and for which about five hundred thousand dollars was appropriated by the City of New York, is now beginning to be occupied by the Department of Anthropology. The offices of the curators, etc., are on the top floor. Below that Mexican antiquities. The gallery is devoted to South American antiquities, Peruvian mummies, etc. The main floor is to be occupied by North American archaeology, including collections from the mounds and cliff dwellings. The ground floor is devoted to the ethnology of Africa and the South Sea islands, whilst the basement floor contains the work-rooms of the preparators.

The members of the Museum secure the specimens, the city furnishing funds for the building and the maintaining and caring for the specimens.

On a year's notice the Museum may withdraw its collections from the building which the city provides in Central Park, or the city may have the building vacated, but as the members of the Museum are prominent men of New York City such action by either party would be against its own interests, and will never be taken.

H. I. S.

An explorer of Floridan mounds, recently, while engaged in investigating one on an arm of land situated between a bend of the St. John's river and Lake Beresford, unearthed a large number of very interesting prehistoric objects. He writes of them in "Our Animal Friends": "This mound, surrounded on all sides by great oaks and palmettos, I completely demolished, finding many objects of interest, including a menagerie. The animals lay but a few inches from the surface, scattered throughout an oblong space about six feet broad and twenty-five feet in length. Beneath them lay a number of skeletons. With the animal effigies were seventy-five small vessels of curious design; many effigies of vegetables, including acorns and an ear of corn, and numerous unidentified objects, making a grand total of two hundred and ninety-two, exclusive of many fragments of effigies and an immense number of bits of earthenware.

No less than forty-eight animal effigies, varying from two to seven inches in length were recovered almost entire. Among these were ten turtles and eight fish of different varieties, including, according to the late Professor Cope, the soapfish and other ocean fish. Among the turtles the snapper and the loggerhead were distinctly recognizable.

Then there were figurines, probably representing bears, panthers, wildcats, otters, two squirrels sitting on their hind legs and eating, a beaver, a dog, a wild turkey, and many other animals which experts have been unable to identify. The alligator was fragmentarily represented by a pair of jaws.

But the most interesting feature of the discovery of these animal effigies remains to be told. Among them was the representation of an animal with a long snout, resembling a tapir, but inasmuch as it was not then believed that the Indian and the tapir had existed at the same period within the limits of the United States, experts who examined the animals gave up the attempt to identify this particular effigy. But since that time Mr. Mercer, while exploring Southern caves, found in a cave in Tennessee bones of the tapir mingled with Indian remains, so that it is very likely that the Indian who modeled the effigy had seen the tapir in life.

When the Indians of later times ceded much of the coast territory to Governor Oglethorpe they reserved to their own use the islands of Sapelo, St. Catherine's and Ossabaw.

On Ossabaw island were many mounds, and among these one containing numerous skeletons, deposits of calcined human bones, and certain large jars, some containing cremated remains, others skeletons of infants.

Buried here and there throughout the mound, in little graves by themselves, were entire skeletons of over one dozen dogs. None of these skeletons were in fragments, nor were there any separate canine bones, as though the dogs had been cooked and eaten and the bones thrown into the mound while it was building. And the fact that the dogs were by themselves, and not near human skeletons, would indicate that these dogs had not been killed at the death of their masters for burial with them to accompany them to the "happy hunting grounds."

The only likely explanation for the facts as I have stated them would seem to be that the Indians of Ossabaw and of other sea islands, where skeletons of dogs were present in the mounds, loved their animal friends and when they died gave to them the same burial rites as were accorded to human beings.

It has long been an open question whether or not prehistoric Indians in this country had a domestic dog (canis), or whether their four-footed companions were descendants of coyotes or wolves, and this question is all the more difficult to decide because the jaws of some domestic dogs do not differ from those of the wolf. It is now believed, however, that the Indians had a dog in type somewhat resembling the collie, but with broader jaws, and this conclusion has been arrived at after a comparative study by ex-

perts embracing prehistoric canine remains from Florida, from Georgia, from New York, from the famous ash-pits of Madisonville, Ohio, from the shell heaps of Maine, and from the Pueblos. They have been compared with the remains of domestic dogs from the mummy pits of Egypt, the lake dwellings of Switzerland, and the cemeteries of Peru, with the result already stated.

New York state has produced another stone god or idol of giant size. This time he came not from a grave, but was produced from the earth's bowels. Hid away in the depths of a cavern, the poor idol when found was broken into two, and the lower extremities were fast crumbling into dust. He was ten feet tall and, it is said, his face shows a strange peculiarity, laughing on one side and crying on the other.

I think the face of the Cardiff giant, which I once saw, and which also came from Western New York, was a very sedate one. Now, why the makers of this idol should have put upon it such a curious countenance is a mystery. Are there perhaps not living in the vicinity giant makers who could tell if they were so inclined? Makers of frauds are still at work it seems.

Probably the oldest copybook for home lessons in arithmetic was recently unearthed in Egypt. The papyrus, which was found in excellent condition, dates from the period about 1700 B. C., that is about 100 years before the time of Moses, or almost 3600 years ago. It proves that the Egyptians had a thorough knowledge of elementary mathematics almost to the extent of our own. The papyrus has a long heading, "Directions how to attain the knowledge of all dark things, etc." Numerous examples show that their principal operations with entire units and fractions were made by means of addition and multiplication. Subtractions and divisions were not known in their present form, but correct results were obtained nevertheless. Equations are also found in the papyrus, among the examples given being this one: Ten measures of barley are to be divided among ten persons, in such a manner that each subsequent person receives one-eighth of a measure less than the one before him. Another example given is: "There are 7 men; each one has seven cats, each cat has eaten 7 mice, each mouse has eaten 7 grains of barley. Each grain of barley would, if cultivated, have lasted seven measures of barley. How much barley has been lost in that way?" The papyrus also contains calculations of area, the calculations of the area of a circle and its transformation into a square, and finally, calculations of the cubic measurements of pyramids. A. F. B.

The Washington, (D. C.) Post says: "Probably the most popular instructive, though, perhaps, not most trustworthy, of the lectures of Wendell Phillips, was that on the 'Lost Arts.' He claimed pretty much everything in sight for the ancient peoples. He drew comparisons that were not flattering to the conceited people of the present. He asserted that nearly every subject that puzzles us today was discussed to rags centuries ago, and that in the arts the ancients had many devices that are beyond our reach. It is only in recent times, however, that there has been proof of an advanced social condition nearly seventy centuries ago. The rich earth of the East has yielded up many of its long-buried treasures, and from the lettered tablets found near Babylon, and more recent discoveries at Negadah, Abydos and Toukh, near the first cataract of the Nile, we learn of a people distinct from those of the first dynasty, whose art was well advanced.

"A few weeks ago there was published an account of these researches, and now there are additional particulars as to the state of civilization of the Egyptians of 5004 B. C. It was stated that at Abydos the French Egyptologist, Amelineau, had found the head of Osiris, who had been regarded as rather mythical; and that Dr. Borchardt had found at Negadah the tomb of Menes, celebrated as the creator of the canals. In that time metals were not in use, but many carved ivory fishes were found and carved stone legs for furniture. It is thought that fine stone carving reached its perfection at that period. The stone vases show a wonderful variety. The religion of the inhabitants of Egypt 5004 B. C., was Asiatic. Instead of preserving their dead, as the later Egyptians did, they showed a disposition to destroy them. Their bodies were twisted and, as in the case of Osiris, the heads were cut off. The king, being divine, was cremated. It must have taken many centuries for the race to reach such a comparatively high state of civilization, so that it is reasonable to place the humanized condition far back of seventy centuries ago."

One of the oldest and most remarkable aboriginal ruins in America is the famous Casa Grande, in the Gila Valley. This ruin has been made part of a government reservation to preserve it, and in 1892 Congress gave two thousand dollars to provide against further damage to the structure. It is situated nine miles west of Florence, Ariz., and a half mile from the Gila river. It appears to have been part of an immense group of buildings which covered nearly five acres.

Dr. Gustav Eisen, of the Academy of Sciences, San Francisco, Cal., claims to have discovered one of the turquoise beds from which the Mexican Aztecs secured a part of their supply. The beds are situated in a desert section at an elevation of about 3500 feet containing little vegetation and scarcely any animal life almost at the point where California, Nevada and Arizona join each other.

Some portions of the district show only turquoise veins, while a few miles away were found stones in the form of kidneys of various sizes from that of a pea to a large bean. The turquoise is generally found in what is known among miners as pockets and small seams—principally as pockets. They occur in considerable quantity, and a day's work results in finding a hatful of stones of varying value.

The other pits bear every evidence of having been worked by some ancient race, according to Professor Eisen's report. There are to be found in them fragments of Aztec pottery and prehistoric stone implements used in chipping the rock. The polished stones found are in the same shape as those in the possession of the Aztecs of Montezuma's time.

Wherever one of the old mines is found it is accompanied by picture writing on surrounding rocks. The hieroglyphics are found only on bluffs of basalt.

"They show," says Professor Eisen, "a mixture of distinct types. One of the rarest represents figures composed of simple lines, curves and dots, the figures resembling suns, stars, crosses, anchors and bars. With this group must be counted rough representations of animals and men. One picture represents a warrior with a large feathered cap standing on another warrior who has fallen.

"The most interesting form of hieroglyphic was of the shield type. Some of these were from three to four feet high and of the most complicated design. In Aztec picture writing there is nothing of a similar character, except coats of arms and shields, which stood for and indicated certain villages, cities or chiefs. But a closer resemblance is, strange to say, found in the hieroglyphics of the Mayas of Yucatan."

Dr. T. Miller, of Prescott, Ariz., a contributor to this journal, proposes to bequeath his fine archaeological collection, one of the most valuable in the state, to the Normal School at Tempe. The board of directors are willing to accept this magnificent donation, but find themselves short of the necessary funds to take proper care of it. They can console themselves with the knowledge that their institution is not the only one in this peculiar condition.

The W. W. Tooker archaeological collection which represents the aboriginal Indian tribes of Long Island, State of New York, was recently sold to the board of trustees of the Brooklyn Institute for three thousand dollars. Mr. Tooker is a well-known writer on aboriginal lore.

A Mr. William Niven has been doing some digging near Chilpancingo, Mexico. Before being allowed to excavate he was not only obliged to obtain a concession from the Mexican government, but had to gain the permission of the Indian owner of the land. The Indian owner permitted the ground to be upturned for one day, with the proviso that he received half of what was discovered.

Before a depth of six feet was reached the explorer was rewarded. A round, diorite dish was found in excellent condition. Then another layer of bones was discovered. A knitting needle, pearl ornament, jade beads and knives were among the trophies. The masterpiece, however, was a small statue. It is a kneeling figure of a king or priest. The hands are lifted in prayer. It is executed with great skill. The calm, proud face shows peaceful repose. The eyes suggest it is a portrait. The mantle draped over the shoulders is daintily graceful and shows the genius of the artist and the muscles of the torso and calves display his knowledge of anatomy.

The owner of the land was persuaded to sell his share and the valuable relics were preserved for people more appreciative. Nothing could better prove the early civilization of this country than this remarkably well preserved statue.

A lady writing to this magazine from Vancouver, B. C., says: "I lived many years among the 'Digger' Indians of California, and am interested (and amused) over the bickerings of some of your writers on this tribe. They not only dig for roots, but also for worms, ground mice and beetles. Grasshoppers I have seen them eat with a relish equal to mine for shrimps."

The history of ancient Egypt must be rewritten. The four mythical deities, Osiris, Horus, Set and Sais were living human beings, and reigned in the above country at least ten thousand years ago. A learned French Egyptologist discovered at Abydos the tombs of the above so-called deities, and I quote his description of the discovery below:

Everybody who has had a little education, or has read a little, knows, or at least has heard of, the legend of Osiris. The benevolent god, benignant and charming, to whom is generally attributed the progress of civilization in the Nile valley, who taught his contemporaries how to cultivate the earth, to enjoy the rural pleasures, to charm their leisure, and to forget their fatigues with the help of simple and touching songs, has been considered up to the present time more as a creation of the imagination than as a real, mortal being. But hereafter it will be difficult to doubt that Osiris, Isis, his sister-wife, and Horus, their son, lived in reality, and played at least partially the parts with which legends and traditions have credited them. The Egyptian texts speak very often of Osiris' tomb, which is designated under the name of "staircase of the great god." They add that the high officials that lived a short time after that epoch desired greatly to be buried near Osiris, who had preceded them in life and death. I discovered on the first of January of this year this famous staircase, which cannot leave any doubt as to the destination of the tomb which my excavations brought to light.

Two years ago I had already begun a very important work, if we consider only the number of cubic meters of sand removed, and my diggings on one side had stopped at a point three or four meters from a large tomb. During my previous excavations I had found a great number of traces of Osiris worship, but they could be explained by the general devotion that people of Abydos, as well as other parts of Egypt had for the god of the dead, who was also sometimes called "the Universal Lord," because men are all submitted to death's law. The hill under which was hidden Osiris' tomb is about one hundred and eighty meters in length by one hundred and sixty meters in width, and is here and there seven or eight meters high. It was composed of millions upon millions of small jars or earthen vases, also some large ones mixed up with sand and a few rare pieces of stone. From the first day of the excavations, in December last, pieces of pottery of all shapes, entire or broken, were found, bearing inscriptions written in hieroglyphic or hieratic signs. Large numbers of pieces mentioned the name of Osiris, and were due to the priests, while a number of smaller pieces bore the name of Amou-Ra. A few of these inscriptions mentioned the house of Osiris. Among Egyptians a term generally used to designate tombs was "eternal houses." These discoveries impressed me so strongly that as far back as December 2 I recorded in the diary, which I keep of my excavations, the belief that I was going to come across Osiris' tomb. If my discoveries had only related to a general worship I would not have found the double (Ka) name of King Menes among the debris; I would not have found that the worship of the dead buried under the hill had lasted until the end of the Egyptian empire. In spite of all these proofs, I lacked yet the details given in the Egyptian texts.

The tomb was in shape a large rectangle, and on the four sides of it were series of tombs which would number about two hundred. Moreover, the necropolis, known in the country under the name of Om-el-Gaah-el-Gharby, contained the sepulchers of persons of very high rank, among them kings, the steles of which I discovered two years ago. So this first point was settled. On January 1 appeared this fortunate staircase mentioned by the texts. The next day I discovered a unique monument. It was a granite monolith in the shape of a bed, decorated with the head and legs of a lion. On this bed was lying a mummy bearing what is known as the white crown, holding in his hands, which came out of the case, a flagellum and a pastoral cane. Near the head were two hawks, and two were at the feet. The dead was designated by the inscription: "Osiris the good Being." The hawks were labeled: "Horus, avenger of his father," and the goddess Isis is also designated by her name. This monument is one meter seventy in length, and about one meter in width and height. The tomb itself has the shape of a dwelling, with a courtyard in front. It contained fourteen rooms and the staircase, five rooms to the north, five to the south, and four to the east. The western face was open. The two extremities, south and north, were closed by a wall on the east side. The tomb was about thirteen meters in length, twelve meters in width, and two and a half meters in depth. There were evidences of fire in it. I found at the bottom of the rooms indisputable proof of the work of spoliators. This fact of the tomb having been destroyed by fire has rendered sterile a great part of my labor. This is to be lamented, and the case is hopeless, for what is lost is lost forever.

It was not without a deep emotion on my part that this holy sepulcher of Egypt was brought to light by my workmen, who did not even suspect the importance of the discovery. The emotion I felt at the thought that I was touching soil sacred for thousands of generations was rendered more intense when I considered that my discovery came just in time to prove that what have been called by theories and theses were not pure unsupported theories and sensational theses, but unquestionably realities proved by facts. Such are in a nutshell the main points of my discoveries.—M. E. Amelineau, in the *Journal Egyptien*.
A. F. B.

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POTTERY OF THE MOUND BUILDERS.*

By W. D. Gates.

The southern boundary of Mobile Bay is a long narrow ribbon of sand, of varying width of from half a mile to two miles, and extending from the mainland at the east, westward between Mobile Bay and the Gulf of Mexico, some twenty miles, ending at Fort Morgan.

The shallow waters to the north of this peninsula formed an ideal fishing and oyster ground for the pre-historic race that once lit their council fires along its shores, and which race has so long passed into oblivion that nothing is left of their history excepting what is disclosed by their pottery and by the mounds of shells they reared.

For the past six or seven years circumstances have led me each winter into this section, and I have taken numerous sailing excursions along these shores, leading me to study more and more the scattered evidences of this long-lost people.

Many parts of the shore are strewn with domiciliary shell piles, such piles as accumulated about their dwellings, and about all these are the fragments of their broken pottery.

Midway along the peninsula, however, is a very striking collection of mounds, known as the "Shell Banks." Here oysters have been piled up into mounds some twenty feet high. Back of these are many of the domiciliary mounds, stretching along indeed far down the bay, but the main mounds are situated on a minute peninsula, back of which opens a very small bay with shores wooded to the water's edge. Strangely enough, while the great bay in front is very shallow, the waters of the little bay are quite deep, and, without doubt, at the time of occupancy this quiet little harbor was fringed with the canoes of its inhabitants and visitors. I say visitors, particularly, because the idea grows upon me the more I investigate that these mounds were, or, more properly, I perhaps should say that the main circular mound was the rallying point for this whole district for religious ceremonies. That to its signal fires there were accustomed to assemble the swift canoes from distant points. Off to the west twenty miles might have gleamed the fires of a somewhat similar station, where now remain the mounds on Dauphin Island, and where may then have rallied those populating the eastern end of Mississippi Sound, across whose eastern

*By special favor of Mr. Gates and the publishers of BRICK, a monthly Chicago magazine devoted to the manufacture of brick, tile, terra cotta and allied products, we are permitted to present this interesting sketch of prehistoric Indian remains, found in a section of our country from which we very seldom hear in this connection, though rich in vestiges of aboriginal occupancy.



PLATE A.

end there then answered back the lights from the shell piles on Cedar Point, now mostly washed away. Directly north of the shell banks of which I am writing were then the lights of the Fish River Shell piles, and northwest of these again others at Point Clear, while a rim of lesser lights shone all along Bon Secour Bay, from the district now marked by the domiciliary shell piles.

The main circular mound of which I have spoken is not large, but is composed wholly of oyster shells piled in a circular wall some twenty or thirty feet in diameter, which wall extends around about three-quarters of the circle, while from its two ends parallel walls extend out to the bay, thus leaving an opening some fifteen feet wide leading from the central enclosure directly to the water, and pointing absolutely north. This does not make it range up the bay, and hardly looks like chance. The shell walls of this mound are some twenty feet high, and now slope for the most part at an angle of about 60°, though there are still places in the inside where the wall remains perpendicular for some two or three feet. No excavations have been made here, but the storms from the north have eaten into the shore line, uprooting and washing out great trees until they have washed away from one to two hundred feet, probably since the occupancy of these people, and washing into the mounds and about their bases have disclosed what has so far been found as relics of the race.

At the west side of the mound, and covered only by a few inches of earth, many human bones are exposed, not lying in any regular order or as if the bodies had been buried there, which is in accordance with observations at other places. This has led to theory that it was their custom to take the bones of the dead, after they had been denuded of flesh by some process, and bring them to some place such as this mound seems to have been, and there leave them with proper religious ceremony.

In their pottery they carefully mixed clay and pounded oyster shells, and articles found were burned so lightly that the shell was not transformed into lime. The broken fragments indicate good shapes, which were skillfully wrought by putting the ware between stone tools such as shown in illustration, which shows one of these actual tools which I picked up right where the dextrous fingers that have for long ages now been dust had dropped it. The lines of beauty seem to be a common heritage among all races, and beautiful shapes seem to have been the rule in their pottery; not only this, but they seem to have been in every case of absolutely uniform thickness. Not all of the same thickness, for some were thick and some thin, according to their several requirements, but whatever thickness the vase had at one point it had at all, excepting that in nearly every case it had a reinforced edge, as shown in plate C, 13.

The ornamentation was mostly in scratch work and in arrangements of dots and lines, though cross hatching is by no means uncommon, and a stippled effect is occasionally found, a good, though small, sample of which is shown in plate B, figure 21.

In the same plate, figure 12, the only instance is shown in which I have found a raised ornament. Same plate, figure 1, shows a conventionalized running leaf pattern with hatched background, and same plate, figure 3, a very flat dish with inside of edge ornamented and slightly indented edge. Figure 20 shows quite a pretty fragment, which we would not be surprised to find in a Grecian collection.

Handles seem to have been their special delight. Plate C shows quite a variety, ranging from the merest little knob, like 4 and 9, through those having the least little opening possible, as 8 and 12, up to large, well-shaped ones like 6 and 7, while a distinct variety is shown in the large flat handles like 1 and



PLATE B.



PLATE C.

the smaller ones of same type, 2 and 3, which latter have a recess on the top just right to fit the thumb of the holder and prevent its slipping off. They were not content with these, however, but used shapes of heads of ducks, owls and even man, as shown on plate A, nearly all of which were ornamental handles to vases. Many of these heads were used, as will be noted, in a distinctly conventionalized manner, and one of them, plate A, figure 1, it will be noted had been washed out into the bay and an oyster shell had grown on it. The horse's head, plate A, figure 9, is a perfect representation, though quite water-worn, and is a poser, as horses are not supposed to have preceded the whites in this country.

The two human heads shown are an interesting study, formed of clay. Both shapes are indetical and peculiar at the same time; both have protruding lips, high cheeks bones, protruding chins, receding and sloping foreheads, and both indicate a very peculiar arrangement on the head, showing apparently a peculiar head dress.



STONE SHAPING TOOL.

The tendency of the climate there is to restful pursuits, and I have noticed in my own case that this applies even more to the lords of the earth than to the fairer sex. It is quite probable, indeed, that most of this work emanates from the hand of the gentler sex, as is indeed the case with most all the Indian pottery, and as would tally with my observations of the climatic effects there, the male population having been then as now, busy resting.

It is interesting to note here that if such was the case the fair sex were then, as now, ever mindful of the needs of their lords and masters, and that they found time among their manifold duties, when some anniversary came around, such as St. Patrick's Day, or a birthday or Christmas, that then besides getting a strong pair of moccasins for the pastor, and instead of going to the bargain counter, the gentler fingers got busy and themselves fashioned a good big generous pipe with a good draught to it for the "old man," such as appears in plate A, figure 8, and which I picked up where the old man laid it down when he quit business.

He has passed to the other side and his race is blotted out with him, and now we are in idle moments trying to read their history in these dry fragments.

THE INDIANS OF THE GREAT BASIN, FROM 1861 TO 1865.

A remarkable fact about the Indians inhabiting the Great Basin at the period of my observations, was their very limited numbers; a fact, however, not surprising when the sterile nature of that region is considered. In those days I seldom saw more than ten or a dozen of them in traveling from Salt Lake city to Washoe. If more had been near by I would have seen them; for, as every mountaineer knows, they wander along every traveled route, especially about camping time.

The Great Basin is the region extending from the Great Salt Lake to the Sierra Nevadas, east and west; and from the mountains of Oregon and Wyoming on the north to Arizona on the south; containing several large lakes and rivers that have no outlet to the ocean. Its topography, and its animal and vegetable life are strikingly similar throughout its whole extent. Though mountain-rimmed it is an elevated plateau 4000 feet above the ocean level traversed by north and south ranges of lesser mountains from 2500 to 4000 feet in height, occurring twenty miles, or more, apart. It includes nearly all of the State of Nevada and the northwestern half of Utah.

In all this vast, silent solitude their numbers at that time could not have exceeded three or four thousands at most. I have traveled there for days together without seeing one of them; then again they were met at the least expected times and places. Their signal smokes by day, and signal fires by night, on the distant mountain sides revealed their lurking places; and, I may add, those signals boded no good to unprotected explorers or prospectors.

These Indians did not congregate in villages, but only in small rancherias, rarely comprising a dozen or twenty individuals, oftener but half a dozen or less. Their rancherias (places occupied) usually were not in the same locality, but from ten to twenty miles apart. Nature there is so parsimonious of food products that a very large area will afford subsistence for only a few persons; and obtaining sufficient food to sustain life was the chief object of the Great Basin Indians, and often difficult to accomplish. This natural dearth of provisions forced them to utilize for food anything and everything that a human stomach could tolerate, it mattered not how repulsive. Taste was not considered; and they had no staple article they could rely on when other supplies failed. They at no time had a surplus of edibles indigenous to the country; ground squirrels were always scarce, as were also fish, berries, pine nuts and esculent roots; and even grasshoppers and crickets, excepting once in a great while, were not plenty.

They highly prized the jack rabbit, not for his flesh alone, but his skin furnished them their scanty stock of clothing. They were not ingenious enough to trap the rabbits, but shot them with arrows, or guns if they happened to have guns and ammunition at the same time. Another way to which they resorted to capture them was by running them down. When I first saw Indians keeping up a slow run, and dodging up and down and in and out of the bunches of sage and greasewood I was at a loss to discern their purpose; but soon discovered they were in quest of prey.

Their method was to continue a moderate pace, giving the animal no rest, until it became exhausted and sought refuge in a clump of sage, and was easily taken.

In places about the rim of the Basin or intermediate ranges, there are broad slopes at the foot of the mountains extending towards the plains for miles with descending grades of perhaps five feet in a hundred. In riding over these gently inclined plains I frequently saw them marked all over with intersecting narrow, dry channels, evidently of artificial construction, leading from the streams in the canyons above down to the valley below, and for a time was puzzled to un-

ravel their meaning; but soon learned it to be a device of the Indians to convey water to the burrows of the ground squirrels inhabiting these places to drown them out. These little animals, when secured, were relished by the Indians as a rare delicacy. Pine nuts, in their season, were also an important item of Indian sustenance, and are delicious eating when roasted in Indian style, as all who have tasted them will testify. The Piñon, or Spanish pine, bearing these edible nuts in its large conic burrs, is found in widely scattered groves on the mountains throughout all the Great Basin; gnarled and scrubby in growth, and rarely attaining any considerable size. Gathering pine nuts in the autumn, as the gathering of acorns west of the Sierras, was inaugurated by the Indians with several days of dancing and festivities.

The Indians of the Basin had no tribal organization, no form of government, no laws; but existed in separate families, sometimes leaguings with others for common defense. They had no recognized chiefs but in times of danger, war, or in marauding excursions, the head of some one of the families became prominent for superior bravery or ability. All, or nearly all, the Indians south of Oregon, including those of the Pacific slope as well as of the Basin, were known as "Root Diggers," in some instances inappropriately; but it seemed as well as any. Those of the Great Basin with equal propriety might have been called Nut Hunters or Worm Eaters.

The miners and prospectors in the territory of my field work, however, seldom spoke of the resident Indians there as Root Diggers, claiming that that name only applied to the Indians west of the Sierras in California. Our Indians were known locally as Pah-Utes, Goshi-Utes, Shoshones, or Bannocks. The Goshi-Utes inhabited the eastern part, and the Pah-Utes the western part of the Basin, but there is no sound reason why they should be known by different names, as in every essential particular, general appearance, characteristics and habits, they were identical, and spoke the same language. They had no horses and very few dogs, and all alike were indolent, filthy and treacherous; and also dangerous when they thought their crimes or depredations might escape punishment.

The Bannocks ranged in southeastern Oregon, and the Shoshones proper in the valley of Snake river; though all the Indian bands of the Basin are regarded as members of the Shoshones family. In early days these murderous savages of Snake river, mounted on fleet ponies, swarmed over the mountains to prey upon and plunder emigrant trains on the Humboldt trail, and frequently extended their marauding forays as far south as the Overland mail line on the Simpson route. When pursued they quickly retreated to their old haunts, where distance and the difficulties of traveling gave them security.

The Basin Indians, both of its extreme eastern and western portions, who came in frequent contact with the Mormons and miners, had, when I saw them, become considerably improved in many respects. They had better habitations, were possessed of more property, including ponies; were better clothed, and had rendered themselves useful to the whites as convenient hewers of wood and carriers of water. And they had also learned something of personal rights, as the following tragedy will illustrate: The noted chief and warrior, Winnemucca, who ranged on the lower Truckee river and around Pyramid lake, had established some degree of order there, and was recognized as a leader of considerable authority. He attracted to his rancheria many adventurous Indians, among whom were several Bannocks, who had profited a good deal in some of the arts of war as well as of peace by association with the white settlers. In 1860 these Indians resented aggressions made, so they claimed, by certain white squatters on Truckee river, which resulted in open hostilities. Thereupon a company of 105 volun-

teers was fitted out at Washoe, armed and equipped to chastise the Indians, and marched against them. Winnemucca and his braves met them on the lower Truckee, and in the conflict that followed the squatters were utterly routed, with a loss of more than half of their numbers. Old Comstock miners in relating this incident in after years attached no blame to the Indians; for, it was said, that most all the volunteers carried with them extra lariats; all frontiersmen knew what that meant.

The Basin Indians had not the slightest conception of agriculture, but were entirely nomadic; today they were off to some new squirrel-hunting ground; tomorrow moving again to a newly discovered swarm of grasshoppers or crickets; the next day in the mountain searching for nuts of the Piñon (pronounced Pin-yone), and so on; the actual and severe struggle for subsistence rendering sedentary life and agriculture impossible.

It is often stated that no boat was ever launched on any of the streams of the mountain-locked basin, and such was the fact, so far as my knowledge extended; but I have frequently seen Indians cross streams there on small rafts made of tules, or swamp reeds, and I have myself resorted to this means of navigation for crossing the Humboldt river in its stages of overflow. For this purpose the tules are bound in bundles as large as a man's body, eight or ten feet in length, and lashed together, making a raft-like boat, like the "balsas" of the Amazon river. A raft of these tule bundles will easily float two men.

At the period of my sojourn among the Indians of that region they made no use of implements of stone, and few vestiges of their former stone age were ever seen, excepting arrowheads of obsidian, quartz or agate, which we often found. The arrows I saw them use were pointed with sharp pieces of iron, generally wrought, by grinding, from old barrel and bucket hoops. The making of stone arrow points must have been the extent of their ancient stone art; for neither stone axe or hoe, or hammer, nor scrapers, mortars and pestles; or, in fact, any other implement, weapon or utensil of stone was ever seen there. The only example of graphic art, or pictographs, I encountered in all my travels through that country, were some obscure characters cut, or pecked, in the smooth, hard face of a cliff in Star Canyon, Humboldt county, Nevada. The work was beautifully done, and the well-preserved figures were in lines an inch in width by half an inch deep; but nothing about them indicated extreme antiquity. The Indians in that vicinity knew nothing about them, but had a tradition that the characters were carved on the rock many years before by Indians from the south in commemoration of some important event or expedition.

Regarding the characteristics of the Indians of the Basin in their primitive condition, uninfluenced by familiar association with the whites, it must be admitted they were the lowest of all our American aborigines. Physically and mentally they were in strict unison with their bleak, inhospitable environments. The scanty, stunted vegetation supported no larger animal than the jack-rabbit and its enemy, the coyote—and, with these, the ground squirrel, horned lizzard, snakes and crickets, with occasionally, in the spring, wandering flocks of pelicans, the chatting magpie and sombre raven, and a lonely gull soaring above, constituted its animal life. In some few of the streams there was an abundance of fish at times; but many of the alkaline waters contained no living thing. Like the vegetation, the Indians were stunted, short and ill-formed. Their rabbit-skin robes were almost the sole garment of both sexes. They were made by cutting the skins in strips and weaving them together, or with some vegetable fiber, somewhat alike our old-fashioned rag carpets. They were mantle-shaped, reaching down to or below the knees, and constituting both their clothing and bedding. Their te-pees, or huts, displayed scarcely as much mechanical skill in construction as do ordinary birds' nests, and had none of the comforts of animal

burrows. A few sage brush heaped up, or bent willows covered with brush and leaves was the extent of their architecture. It was not uncommon, in the severest weather, to come upon a rancheria of Indians, on the cold, wind-swept plains, and find the poor wretches crouched in these brush piles, with no covering but their rabbit-skin cloaks, with no fire, and not a mouthful of food in sight. Like animals, they seemed to possess only the instincts of life preservation and reproduction. They had no glimmerings of mythology; no ideas of religion; not the faintest notion or alluring hope of a future happy hunting ground to beckon them on and give a silver lining to their cheerless and hapless existence; absolutely no thought of anything but to escape danger, and satisfy the pressing demands of the stomach. Their sole redeeming trait was the chastity of the females. In my continuous residence among them for four years I heard of no instance of a white man marrying a squaw, or of a single case of feminine lewdness or immorality on the part of the squaws; nor did any of them, male or female, use tobacco or whisky until they had attained a considerable degree of civilization. They cremated their dead simply to save the labor of burying them and to deprive the coyotes of the opportunity of feasting on their bodies. They probably never thought of a future state of existence, or, after their experience of this life, did not desire it.

WM. EPLER.

Virginia, Ills.

[The foregoing paper is another interesting and valuable contribution to the natural history of the Pah-Utes, or "Root Diggers" of Captains Bonneville and Fremont, by a resident observer of implicit reliability and sound judgment. Mr. Epler spent several years in the Great Basin in the several capacities of engineer in the topographical department of the Central Pacific railroad, U. S. land surveyor and county surveyor of Humboldt county, Nevada. He was obviously not making anthropology a special study at the time, but included the local Indians in the wide range of his intelligent investigations.—Editor.]

FRAUDS.

On page 81 of the March *Archaeologist* attention is called to counterfeit relics. This is very opportune and commendable, but it does not go far enough. Every real student of archaeology detests these frauds and ought to assist in their exposure. There is another class of frauds that do even more harm than these, viz: A class of \$5.00 article magazine writers who pose as scientific authority, but do not hesitate to state falsehoods—lies—simply because they say it makes the matter more readable, and brings a better price. Recently I had occasion to call one of these individuals to account for misrepresenting a matter. The reply was, "What do I care? I got more for the article than I would if I had told the truth." A writer has recently published an article in a semi-scientific magazine, in which the art of the cliff dwellers is illustrated. The subject of the illustration is in my possession. The illustration is true, but the text is not, and the author knew it at the time of writing it. We are all liable to make mistakes, especially in the field of archaeology; and in honest mistakes the broadest kind of liberty should be allowed, but no liberty or license for deliberate falsehoods should be tolerated.

Much as I regret it, I must admit that relics are manufactured at or near Tempe, in this territory. Mr. Burt Ogburn called attention to this in an article in the *Arizona Educator* (now defunct) nearly two years ago. I think, however, that the most of it is done by the Pima Indians at the instance of certain unscrupulous white men.

I recently saw a stone god (so the dealer told me) in one of the curio stores in Phoenix. This god had not been long out of the workshop. It was an ordinary river stone about 15 inches long by 4 wide and 2 thick. The eyes, nose, mouth, etc., were all freshly done, and the whole was "dressed up" in an old dirty blue calico dress, something after the style of a rag doll soaked in sorghum molasses, with dirt and grease well rubbed in. These I suppose were the marks of antiquity; for it certainly presented nothing else that would indicate age or use. I have no doubt but this god ere this is in the possession of some tourist and is receiving the admiration, if not the adoration, of its possessor and his friends.

J. MILLER, M. D.

Prescott, Arizona.

HOW MY ARCHAEOLOGICAL EYE WAS OPENED.

A few years ago when walking across the locality from which the manure heap had recently been removed, I noticed a sienite pebble partially exposed in its matrix of boulder clay. I immediately recognized it as a work of art, but not what it proved to be; for I verily believed that I had found one of those beautiful little neolithic gouges noticed in all collections of any considerable magnitude. But after it was cleansed its true character was clearly visible; namely, emblematical. A human face, en profile, was the result of all this stone cutting. If the artisan has left for our inspection a fair average representation of the human physiognomy of his period it does not convey a favorable impression as to the intellectual force of primitive man.

The head is by no means well balanced; as the space below the eye leaves scarcely one-sixth of the entire height for brain. The upper lip is, at least, twice the length that the size of the image would justify. It will not do to charge the artisan with incompetency; for any one who could carve so cleverly would not diverge widely from his model. The facial line, which should be vertical, forms a prominent outward curve.* I have no conception as to the object of the artisan in the prominent notch, at the smaller end, and the angular, trough-like cut is equally obscure. The deep and massive inferior maxillary may be claimed as proof of the quadrumana character of the model.

I think I referred to my palaeolithic birds in my last letter. One of these, the smallest in my collection, seems to represent the grallaeaceae, or wader family. The head rests against the side, as in two other examples which are distinguished by enormous beaks, apparently of the toucan family. One of these large beaked birds bears a striking resemblance to a plucked fowl.

But the most interesting sample is a bird of the large beak genus, wrought out of the most obdurate granite. Like the others, it is represented in the sitting posture, the head resting against its side, which, we know, causes the crop to protrude. This feature is admirably represented.

Reflections—At what period in the remote past was this carving accomplished? In the Tertiary. In what division of it? In the Miocene. The proofs embrace objects of art which I have found in the glacial drift, modified drift, and boulder clay.

It is conceded by our leading geologists that two great glaciers passed over this continent. The proofs for this claim may be seen in the smoothly-worn and striated surface rocks. In my researches—archaeological—I have discovered additional evidence in the discovery of wrought boulders deeply buried in modified drift. One of these, an implement six inches in length, two inches square at the larger end, tapering to a smoothly rounded point one inch in diameter. Ma-

* It is repulsively stunted.

terial—compact granite. This is the only implement that I have, hitherto, discovered, and this I found in the bottom of a gravel pit, thirty feet from the surface. The inference is that the boulders were formed in the pluvial period which succeeded the first great glacier. The carving was done in interglacial time.

My collection embraces four birds, one saurian, three cups, one of which is simply a prominent cavity in a large boulder, one clearly-defined parrot and the elephant. The polished condition of the boulder and of its cavity is suggestive of persistent use, but I have no conception as to its practical application. Its weight—seven and a quarter pounds—would exclude it from the domestic implements. Therefore, in utter desperation, I have given it a place in the paraphernalia of some very ancient exquisite as a paint cup. The cavity presents numerous unobliterated pick marks, which fact clearly establishes its authenticity. Of the other two cups one is wrought out of compact quartz, and the other of silicious sandstone of equal density. Just why those ancient artisans selected the most obdurate minerals on which to exhibit their skill is not clear. Probably they had a foreboding of a repetition of the cataclysm that broke the rocks and prepared the boulders.

When Dr. C. C. Abbott announced his discovery in the quaternary deposits of New Jersey, it created scarcely a hum in the archaeological hive. Why? Simply because they were flaked implements, and De Perthes had before borne the shock. My discovery, with one exception, being emblematical, must needs be natural forms.

The most interesting object that has hitherto rewarded my researches, is a veritable elephant, wrought out of a small slab of compact granite. The artisan was singularly successful, and must have had the animal's broad side before him while making his outline sketch. The undulations of the trunk and its inward recurve are strikingly true to nature. This discovery may be accepted as settling the disputed question as to the contemporaneity of man and the elephant on this continent and also removes the cloud that has hitherto rested on the reputation of Dr. Koch.

It should be stated that there is a naturalness in these images that even the most stolid and indifferent recognize. Compared with these, the New Jersey specimens appear as child's play. Moreover, this discrepancy is intensified by the reflection that the New Jersey artists had soft shale, while the Miami artists produced their superior images out of the most refractory granite.

I will mail with this letter the object that opened a new and most interesting field of research. If any one has preceded me I have not been advised of it.

If you should recognize "the plastic hand of man" in the modification of this pebble you have my consent to retain it indefinitely. If not please return it. Perhaps a few brief instructions would be in order here. Seat yourself in front of a window with a western exposure, in the morning or evening twilight. Hold the pebble between your thumb and finger, by the smaller end, concave side up, more properly toward you. The reason why I give these instructions is that I had the object several weeks before I discovered its true character.

This is the first image of primitive man that I have seen or heard of. I value it very highly, but I set a higher value on your friendship.

If you find anything in this heterogeneous letter worthy of a place in your excellent periodical, use your judgment in deciding what may and what may not be published.

Respectfully,

S. H. BINKLEY.

Alexanderville, Ohio.

[The sienite pebble mentioned by Mr. Binkley as having, in his opinion, been carved by a preglacial American to represent the profile of a human face, and which, he states, was mailed to us for examination, has not yet arrived; consequently we cannot venture any remarks concerning it.

The other stones he describes sculptured by Tertiary man in Ohio, must indeed be of the highest interest; and, if proven genuine, will disrupt all previous theories of primitive culture and of evolution of human arts on this continent. Heretofore, we have expected in palaeolithic remains only the rudest forms, as displaying the first and simplest beginnings of aboriginal art; and now to find in the Tertiary deposits the elephant's effigy, cut by man from a granite slab, must revolutionize all of the little that we think we have learned of man's origin and development.

To this time, we have no evidence whatever—Mr. Binkley's specimens excepted—of the co-existence of man and the great extinct pachyderms on this hemisphere; and there are yet grave doubts of their contemporaneous existence anywhere else. If, in the future, the fact will be indubitably established that man was in America before or between the glacial periods, it will, in all probability, be found to be true, as now claimed, that he was then so little advanced in mechanical ideas as to be capable of bringing to his assistance in overcoming natural forces only such objects as he found readily at hand, as sticks, stones and shells; or, at best, of modifying them to better suit his purposes, in the simplest way by fracturing one with the other. Therefore, such startling alleged discoveries as finding polished grooved stone axes in the till, or boulder clay, of Ohio, or sculptured birds and elephants in the same geological horizon, must be regarded as *a priori*, improbable, and can only be credited or accepted when confirmed by the most careful and exhaustive investigation of all conditions and circumstances surrounding them.

Dr. Albert C. Koch's scientific reputation was of that elastic kind that no ordinary cloud could seriously affect it to any great extent. With much shrewdness and energy, and some learning, he was a better financier and speculator than scientist. As a money-making enterprise he dug from the quagmires in the low bottoms of the Bourbense, Gasconade and Pomme de Terre rivers in Missouri, a flatboat load of mastodon and mammoth bones and floated them down to St. Louis. From this mass of fossils he reconstructed his famous great mastodon skeleton, named by him the *Missourium*, and sold it to the British Museum. His next venture was the collection of a large quantity of petrified bones of the *zeuglodon*, an extinct cetenoid saurian, whose remains were found in such great abundance in the earlier Tertiary limestones of Washington and Choctaw counties, in Alabama, that negroes built the chimneys of their cabins with the huge fossil ribs of the ancient monsters. Dr. Koch made two or three shipments of *zeuglodon* bones to Germany and sold them in Berlin. From his last collection of these Alabama fossils he reconstructed his *Zeuglodon Macrospondylus*, of genuine petrified bones of the great aquatic reptile, with some plaster additions; and by putting together the ribs and vertebrae of several individuals he reproduced a skeleton fearfully and wonderfully made, of amazing length that passed well for the highest type known of extinct Sauro-ophidians. This patched-up *Hydrachien* he brought to St. Louis, where it was for some time on exhibition at Wyman's hall; and was then sold to Dr. McDowell of that city, who failed to pay for it, when Dr. Koch then took it to Chicago and sold it to Woods' Museum, where it finally perished in the general conflagration of that city in 1871. We have repeatedly visited the scenes of Dr. Koch's labors where he recovered the mastodon remains along the Missouri streams, and saw with what facility a flint arrow-point, or a pebble, thrown upon the surface of the quaking quick-sand swamps could, dur-

ing rains and overflows speedily sink to the bottom and there rest on or under the huge bones entombed in the treacherous marsh many ages before.

The claim to high antiquity of the two elephant pipes of Rev. Mr. Gass—whittled out of soft sedimentary rock—now resting, along with the wonderful tablet discovered by the same gentleman, in the museum of the Academy of Sciences, of Davenport, Iowa, is much more modest than that of Mr. Binkley's specimens, as Mr. Gass only proffered to probate his as part of the assets of certain defunct Indians, presumably prehistoric, but not preglacial.

The genuineness of these marvelous Davenport relics has of course been seriously questioned; and they—and Mr. Gass—have been ably and voluminously vindicated; yet, the world of science, satisfied with nothing less than immutable truth, is not prepared to admit the evidence of this class of specimens as absolutely conclusive of the coeval occupancy of America by man and the mastodon.—Editor.]

THE INDIAN MOUNDS AND INDIANS.

On the west bank of the Sacramento river, in California, where Colusa, the county seat of Colusa county, is now situated, there was, when the gold hunters of 1849 overran that country, like the hordes of Attila did the plains of Gaul, an Indian mound yet in the process of construction. It was about six feet high and a hundred feet in diameter at the base, circular in form and almost level on the top. On this elevation were some twelve or fifteen huts of the native mound builders, erected by the squaws, of adobes and mud brought from the bank of the river two hundred feet away. The huts were conical in shape, seven or eight feet across at the base and six or seven feet in height, with an orifice in the apex of each for the egress of smoke, and a kennel-like opening near the ground through which the inmates crawled in and out. Here they lived continuously, subsisting upon fish, crickets, insects and berries, in their season, and such wild animals as they chanced to catch or kill. The bones of fish and animals, with mussel shells and all other refuse were scattered around the hovels promiscuously. When a member of this rancheria died, a hole was scratched out in or near the hut in which the death occurred, and in this shallow excavation the body of the dead was deposited, either in a sitting or prone posture, as most convenient, and then covered with dirt. When a hovel was washed down and fell, as often occurred during the rainy season, it was replaced by another in the same place without removal of any debris or rubbish of the one collapsed.

As this process of constant accretion of material continued the mound increased in height and dimensions until the villagers all died or removed to some more favorable location.

This mound therefore was not built at once for a monument, or for sepulchral purposes, but gradually grew from accumulation of the debris and camp or village refuse in the course of a considerable length of time. I did not visit the mound mentioned until the influx of gold prospectors had driven its native builders away; but subsequently I did frequently visit another one of the same character, some fifteen or twenty miles farther north, on which the work of construction, or gradual growth, was still going on. In 1865 I spent a month there, near Princeton, visiting Dr. Hunter, an old friend formerly from Belleville, Ills., and during that time almost daily went down to the Indian rancheria to observe the mode of life of those swarthy natives in their primitive squalor. Their three or four stick and mud huts, looking like large inverted Kettles, were on a mound not so large as the one before described, because not so old, and contained not more than a dozen inhabitants altogether. The mound was seven or eight feet high, and Dr. Hunter, who had resided there for twelve years, said

that he noticed its increase in height since he first saw it. These Indians were round-headed, low in stature and of very dark color. They ate grasshoppers, crickets, lizards and in fact anything and everything they could pick up. I have seen colonies of beavers that built better houses and seemed more intellectual than these California Indians.

I am satisfied that the mounds so common in North, Central and South America are composed of the accumulated, dried, hardened and settled debris of the mud houses, and of the camp refuse of ancient Indian settlements, and that they gradually grew by continued additions of material, just as these in California did. The works of art, as implements and weapons, found in them vary, of course, indicating different degrees of intelligence and culture of their builders, influenced by climate and environments. The largest and best defined mounds yet unexplored, I now recall seeing, are, one at or near Florence, in northern Alabama, and the other in the west, near the state line, in Cass county, Mo. Either of them are worth a trip from your residence, Mr. Editor, to see them and coerce from them their long-hidden secrets.

This much for the mounds. Now for their aboriginal builders. To simplify and facilitate this discussion, I will first submit this proposition: Are the Senegambian negro of Africa, the almond-eyed Mongolian of China, the Digger Indian of California and Daniel Webster all descendants of the same primitive parentage? The ablest evolutionists are staggered by this question, and evade it by suggesting that primal creative efforts were probably repeated, producing successive types differing in their embryonic simplicity. Early naturalists divided the human family into eighteen varieties, which in later years were reduced to five. The five recognized races or varieties differ so widely in marked characteristics as to seriously strain all the agencies of evolution, including natural selection, divergent functions and effects of environments. Yet, the unity of the genus homo is one of the best settled principles in anthropology—so accepted generally. The American Indian then may not have been created here; but may have gradually changed to an Indian in getting to America; not by crossing Behring strait, or getting ship wrecked, or cast away, but by slowly traveling here by land over a continent that may have since disappeared beneath the broad waters of the Pacific ocean. Or, who knows but that America was the cradle of the human family, and that migrations and divergencies and differentiations proceeded from here westward over the land now submerged?

But, speculation aside, the preponderance of evidence points to the Indian's introduction into America by migration from the eastern hemisphere; though it must be confessed that his early history is enveloped in an impenetrable fog, and that Nature works with closed doors. And the more secret Nature is about it the greater is our desire to pry into her affairs. If the north pole was in Chicago you wouldn't walk across the street to look at it. But the obscurity of the Indian's origin gives the question irresistible fascination. It must be admitted that the oldest and best history in the world throws no light on this subject. The cosmogony of Moses—inspired as I believe it to have been—is so brief, and couched in the language of allegory and poesy that characterizes the Orient to this day, teaches us nothing about it; nor have any of the bards, seers, historians or philosophers of the Bible anywhere referred to it. If the problem is ever solved it must be done by science. And here is the wide and inviting field for the archaeologist. The foretold day when "many shall run to and fro and knowledge shall be increased" is now here, and knowledge is being wrested by science from the present, future and past. The buried cities of Mexico, Egypt, Assyria and all the old world, are surrendering their lost histories to the pick-axe and

shovel of modern science; and science will surely in time unlock the secret of the Indian's origin and his first appearance in America.

Blue Rapids, Kansas.

WM. F. BOYKIN.

[The writer of the foregoing paper, now passed ninety years of age, has, from his early manhood, occupied a high standing in the ministry of the Baptist church. Gifted with rare eloquence and brilliant imagery, and possessing a vast store of varied learning gleaned from a wide range of studies and intelligent observations, he has in all those years filled his chosen station with distinction and conferred lasting benefits upon society. His long and busy life has been so engrossed with the duties of his high calling as to leave him but little time to devote to archaeology as a science, or to keep in touch with its expanding literature and rapid progress. He describes well the growth, by accretion of camp refuse, of all the great shell heaps and a certain class of residence mounds of our country, but incorrectly concludes that all Indian mounds are the result of the same process. By far the greater number of them, beyond doubt, reached their final proportions by periodical additions of material; but it is also true that fully ninety per cent. of them were erected for specific purposes—chiefly sepulchral—with design and by simultaneous co-operative labor.]

With all other well-versed theologians, Dr. Boykin finds it difficult to reconcile ancient Jewish traditions with the revelations of modern science; and with the most learned anthropologists he meets with equal difficulty in tracing the widely divergent types of mankind to a common parentage.

In behalf of our readers, we would assure the venerable divine that the further elaboration of his views upon these subjects would be very appreciatively accepted.—Editor.]

CORRESPONDENCE.

Mr. Editor:

It may be that I do not know what has been going on in the relic line in my portion of the great State of Missouri within recent years. Since my last letter to you, in which I "stood up for Missouri," a letter has reached me, speaking for two collectors in Wells-ville, Ohio, in which the writer informed me, in rather vehement terms, that they have been caught, and by "old Levering" of Jonca, Missouri, at that; a party who has been denounced time and again by myself and others, in your, and other, journals, for his frauds in stone implements. His handling of bogus pottery is news to me; for he heretofore has confined his counterfeiting operations to relics of stone and the like, which I always thought came from a distance, for I considered him incapable of their manufacture; and because the forms sent out by him were not of our locality. It is possible that he has turned to be a potter recently—a word to the wise ought to be sufficient.

Mr. Thomas Harper comes down hard on these counterfeits in the April *Archaeologist*; but permit me to say to him, that, as a rule, those collectors who vie in gathering truly and wonderfully made objects, and brag on the fineness of their exhibits, are to blame for these fraudulent practices. Stop the incentive and the manufacture will stop. The rage for varieties is the foundation of this evil. But that is not all. Some collectors will, and do, knowingly purchase from parties whom they know deal in fraudulent objects. Even the Ohio gentleman referred to informs me that he and the other collector he speaks for received "a whole box full" of copper ornaments from Levering several months ago which were bogus; but still is now again caught by the same rascal in a pottery deal. Collectors there will always be; and the majority of them cannot form cabinets by field work (to be regretted); but such can at least do business with reputable dealers. As to museums that are caught by the scoundrels, I have no sympathy for, for the managers of such institutions should know better.

Exposures of these dishonest practices seem to do no good; for buyers assume to know it all, and are heedless of advice or warning; and then when caught they raise a howl. I have in mind several well known instances: one was a certain person in western Illinois, now deceased, who at one time was a shining light in the archaeological world, had been caught "red handed" as a bogus relic maker several times, and the facts advertised; still he did a rushing business with well-known collectors, who bought of him, but only after careful investigations, which he termed "d—d inquisitioners."

A well-known writer of the South, in Chicago in 1893, related facts, and proved them, regarding a certain exhibitor at Chicago who dealt in frauds; but, bless me, if his hearers didn't buy the crooked exhibitor out before the close of the Fair. Is it not a fact that the factories of spurious relics at Philadelphia, Flag Pond, Va., Cincinnati, Nashville, Alton, Ills., and at other points, have enjoyed a greater boom in their business after their exposure than before?

Therefore, what is the good to preach? Send the rascals to the penitentiary.

St. Louis, Mo.

WILLIAM J. SEEVER,
Secretary of the Missouri Historical Society.

[We are decidedly in favor of sending the rascals who are guilty to the penitentiary. Will Mr. Seever tell us how to do it? Our object in agitating this matter, and giving wide publicity to the fraudulent practices of these scoundrels, is not only to warn the public of the evil, but to invite the co-operation of honorable people in assisting us to devise means by which the illegal traffic may be suppressed, and the illiterate, unprincipled wretches engaged in it be brought to justice and receive merited punishment.—Editor.]

American Archaeologist:

Permit me to record with you an incident which is rather interesting. In December last I was called to Woodbridge, a village some twenty-five miles north of Stockton, to conduct funeral services. As we drew near the newly-made grave I noticed that the excavation had been made in ashes. The heap beside the grave was white and as fine as dust; and mingled with it were bits of charcoal, shells, bird and fish bones, etc., the refuse of an ancient Indian camp. The occasion, and the hasty return forbade any investigation at the time; three weeks ago, however, I was again in Woodbridge under conditions which admitted of some examination. A visit to the cemetery then revealed the fact that about one and a half acres of its northern part was an artificial elevation, of perhaps five feet, bordering on a wide slough which opened into the Mokelumne river a quarter of a mile distant. The surface of this mound was covered with a sod of wild grass; but wherever it had been disturbed there appeared abundant evidence of former aboriginal occupation. Seeking out the sexton—a kindly old man who had been in charge many years—I learned that the cemetery is one of the oldest in the county; and that numerous skulls and parts of human skeletons have been exhumed from this mound portion of it when sinking graves.

And with these there have also been recovered many interesting relics, the most of which are now scattered and lost sight of. Through the courtesy of the sexton I secured three fine bone implements, five obsidian spearheads, one arrow point and a finely-wrought drill whirl. I am now tracing other relics from the place and hope to add them to my collection.

I was struck by the coincidence that a place given by the aborigines to the burial of their dead, should afterwards be consecrated by the whites to the same purpose.

It is doubtful if the Indians, had they a voice in the matter, would consent to such use of their place of sepulcher. But let us hope, that in the bosom of their mutual mother, the "God's acre," of the Indian no less than of the white, they may rest undisturbed by the mutual juxtaposition; and that in the great day "when the earth shall give up its dead" and all misunderstandings be cleared away by the brightly shining knowledge of the future, each may awake with a more just and generous appreciation of the other.

I now have a list—still growing—of 163 ancient mounds and burial places for future investigation.

Stockton, California.

H. C. MEREDITH.

To The Archaeologist:

The Pima Indians, who live on their reservation a few miles from Tempe, manufacture a great many "ancient relics" which they sell to collectors and curio dealers in Phoenix and Tempe. Many of the persons who purchase these "relics" conclude that they were found in the ruins near Phoenix; but they are mistaken.

The Indians manufacture hundreds of these counterfeits. I have visited the reservation a number of times, and I have invariably seen there several of the Indians engaged in the manufacture of articles to sell to curio stores and collectors that call them "ancient" (?) relics.

One prominent collector in this valley bought the larger part of his collection from the Pima Indians. These may be of great interest to him, but I hardly think that they would be of much value to a true archaeologist. What is the opinion of the readers of The American Archaeologist concerning this?

BURT OGBURN,

Member of Arizona Antiquarian Association.

531 Orange Street, Riverside, California.

[We have commenced in this number of *The Archaeologist* to give our opinion of relic counterfeiters in language that cannot be misconstrued; and we will continue the crusade against the scoundrels until their swindling is suppressed. Let us hear from our readers now.—Editor.]



Editor *The Archaeologist*:

On page 304 of the November issue of *The Antiquarian* I illustrated and described the remarkable find of a carved stone, or pictograph, which I found in my excavations at Baum Village site.

Since then I have studied the markings and have mailed photographs of the stone to a number of collectors for assistance in deciphering the meaning of the stone and its markings.

I have had numerous theories advanced, from which correspondence I give a few extracts:

Mr. Charles Laubach, of Riegelsville, Pa., says: " * * * I was greatly struck with the similarity of the carvings on the stone found at Baum Village site to the carved stones found in New Jersey and Pennsylvania. The Indian tribes who dwelt in the forests of Pennsylvania, Delaware, New Jersey and parts of Maryland, held a tradition that ages ago their ancestors travelled eastward from the Mississippi, conquering the apparently more civilized nations whose mounds are so profusely scattered throughout Ohio and the western part of

Pennsylvania, as well as in other parts of the country. The Wolf and Turtle tribes not only claim that they originally came from the Western country, but that they were eventually again driven westward, there to become extinct. * * * "

Rev. W. H. Beauchamp, of Baldwinsville, New York, states that at the first glance the work on the stone would suggest the work of the white man; but upon closer examination, and from the circumstances in which it was found, he would class it as Indian. His translation of the carving on the stone is as follows: The Eye and the Turtle: "The open eye" of the Turtle class; and the angular lines would point out his exploits; the lower line running to the head might refer to his going on the warpath against the tribe of Wolves.

Professor W. O. Emery, of Crawfordsville, Ind., states that some of the markings on the stone are very similar to the markings on a pipe in his collection.

Since the finding of this pictograph at Baum Village site, a slate pendant was discovered about eighteen miles west of the Village site. The pendant was found near a large mound about five miles southwest of Greenfield, in Highland county, by Mr. Levy Gray, a farmer, and is now in the collection of S. B. Hanna, of Greenfield.

To make a plain photograph of the pendant, I first filled the lines with chalk. It is six and three-eighths inches long, four and three-fourths inches wide at the widest part, and is three-eighths of an inch thick, and is made from a dark slate, and has beside the markings shown in the illustration, twenty-one notches cut in the edge at the right side, which is not plainly shown in the cut. On the reverse side to the right and left of the hole drilled for suspension, is a series of crossed lines. On page 73 of *Abbott's Primitive Industry* is an illustration of a shell disk from Tennessee which greatly resembles the carvings on this slate pendant.

Believing that to compare notes and to have a general interchange of ideas will be a help in the interest of archaeology, I would be glad to read the accounts of others who may have specimens of this kind, either through the columns of *The Archaeologist* or by personal letter.

Since the spring floods through Pain Creek Valley I have devoted two days each week to searching for surface specimens, with good results, as I have added to my collection several specimens of interest, an account of which I may give through these columns at some future time.

A. B. COOVER.

Roxabell, Ohio, April 11th, 1898.

EDITORIAL.

COUNTERFEITING INDIAN RELICS.



From all quarters complaints, that should not be ignored, are coming to us of the increasing numbers of spurious Indian relics now offered for sale and successfully palmed off on the unwary. It is time that a concerted effort was made to suppress this most despicable mode of swindling. It has long been known that the chief center of this nefarious business is in the southwestern corner of the State of West Virginia. There, in or near Flag Pond, in Scott county, in that state, two or three of the Robinette family, and another one of them across the line, in Hancock county, Tennessee, have been for

years openly engaged in the manufacture and sale of imitation prehistoric stone implements on a large scale. To facilitate this vile traffic they also buy and sell genuine Indian remains, obtaining many fine specimens from the mounds and graves of that mountainous region, and, by purchase, from others who have thus secured them.

By long practice these people have become such adepts in counterfeiting the work of ancient aborigines as to be able now to put upon the market imitations so well executed as to successfully deceive any but the most observant archaeologists; and their unmolested operations have grown to such an extent as to seriously impair the integrity and value of many collections. Having no flint in their immediate vicinity, they buy, through agents and by direct orders, from reputable dealers in the Ohio river states, large quantities of broken flint implements and flint chips (excluding those of chert and of uneven fracture), which they rechip in various forms, and stain to imitate those long buried in the ground. The leader of this gang is G. W. Robinette, on whose printed letter heads last year appeared his claims to high scientific standing as follows: "Member of S. P., 636; International Philatelisten Verein, Dresden, No. 493; Historical Society, Auckland, New Zealand and London, England." On his letter heads of this year these distinguished titles have been omitted, and after his name there is appended only, "Collector of Relics, Curios, Stamps, Shells and Rare Stuff." We are in possession of several of his orders to well-known responsible and reliable dealers in prehistoric relics for broken flint implements, all dated from Flag Pond, Va. One is for two hundred "blemished spears" at one cent each. Another is for three hundred and fifty of the same sort. Subsequently he writes: "Dear Sir the Blemished Spears come all o k with \$1.50 charges. 'Thanks.' I will say though that I have Sent with this an other Order with Cash &c. & Please note this my Customer took all But the thick Chubby

ones which I had to throw away. Please Notice in this lot I Now order to send only thin Nice ones even if Broken I Can do better with them than a Perfect one that is thick Rough and Chubby. * * * * thick Heavy ones only add to ExP, Charges & are of no value to any one." We have letters from reliable persons who have been in the Robinette factory and have seen the counterfeiters at work. These men have been repeatedly exposed; but as there is no law in any of our statute books prescribing a penalty for this species of knavery, they have paid no attention to it. Their fraudulent work was several times alluded to in *The Archaeologist*—predecessor of this magazine—and, on page 246 of the July, 1895, number of that periodical, was presented a portrait of one of the Robinettes, followed by several instances of their dishonest practices. The member of this firm residing in Hancock Co., Tenn., adds to one of his orders, now before us: "Reference P. M. at Robinett ten also merchants ex Bank Bristol Tenn. P. M. at Fair View Va P. M. at Democrat Va and many others that is to tedious to mention."

There are good reasons for the belief that these men have agencies throughout the country who supply them with raw material, and receive and sell the products of their factory. One of these, who sells "fine bird points" and other relics, is located at Sidney, O. We have several orders from this man to a legitimate dealer, from which the following is a fair sample: "Sidney, Ohio, Sept. 29, 1897. Dear Sir: I would like to buy a quantity of broken arrow points (no matter how badly broken). If you can supply me with same please give me price on a peck or half bushel delivered at —," etc. And the mutilated flints were in accordance shipped to him. Not long since this man sent to the dealer mentioned, for sale "on approval," three flints of marvelous shapes, that he styled "Ceremonial Crooks," and which, he said, had been sent to him from Cheatham county, Tennessee, cautiously adding, "These goods are O. K., but I have no way of testing them and am not experienced enough to tell otherwise." The prices marked on them were 50 and 75 cents and \$1.50 respectively. They were submitted to us for inspection, and we present a figure of them of full size. On subjecting them for several hours to a bath in strong solution of sal. soda the staining applied to give them an appearance of antiquity was all removed, and the newness of their fabrication was very conspicuous. We must admit that they are exceeding well made, and prove that stone chipping is not a lost art; but that certain unscrupulous white persons of the present day have, by long continued practice, become as expert in it as were any of the ancient aborigines. These "crooks" are of flint not found in Tennessee or elsewhere in the South. Nos. 1 and 2 are of pinkish yellow jasper, evidently fashioned from fragments of large implements originally from Illinois or Missouri; and No. 3 is of the grayish flint common in portions of Flint Ridge, Ohio.

We informed our readers some time ago that one D. Levering, who advertises Indian relics for sale at Jonca, in St. Genevieve county, Missouri, turns out Indian pipes—and no doubt other bogus relics—of almost any desired pattern at short notice. Another dealer whose specimens should be critically examined before payment for them is made, is Mr. J. T. Overstreet, of Elmwood, Tennessee. He has offered for sale spurious pipes so closely resembling Levering's as to create the suspicion that he may be that worthy's agent—if he is not Robinette's; or a manufacturer of them himself. Professor Putnam says of the Overstreet pipes sent to him for examination: "The three specimens are of undoubted recent manufacture. They have been made in a very ingenious way, and in several respects look like prehistoric pipes; but from the partial examination I have made I have no doubt they would come into the class of 'frauds.' Nothing like them has ever been found in the whole of Arkansas or Missouri, so far as I am aware. * * * They have evidently been rubbed over with gum arabic, ashes and

clayey sand to give them their present appearance. It may be that they are actually molded from some composition, though they have the appearance of being cut out of a very soft stone." A very honorable and reliable dealer in curios, in Ohio, writes us, under recent date, as follows: "I have in my possession one of the J. T. Overstreet pipes which I can send you for examination if you wish. It is the best counterfeit pipe I have yet seen, and is well calculated to deceive anyone. Don't fail to show up these pipe fraud fiends, for I consider some of their pipes far more dangerous to our business and your science than the flint crooks."

We are accumulating evidence from many sources of the guilt of this contemptible lot of petty criminals; and will continue to search them out relentlessly and publish them until their villainous industry is suppressed, or the swindlers are brought to justice. To aid us in this purpose we earnestly appeal to our readers, and especially to all honest dealers in aboriginal relics, to promptly report to us all well-authenticated instances of fraudulent or counterfeit relics coming under their notice with every particular concerning them. At the same time we would caution those desiring to purchase such Indian remains to carefully scrutinize specimens offered for sale, and buy from none but persons of known responsibility and integrity. We intend to do all in our power to enlist public opinion and every other influence possible to secure enactments of laws by state legislatures, or by congress, classing these frauds as felonies subject to the same punishment as is provided for counterfeiting our national coin or currency.

BOOK REVIEWS.

The Survival of the Mediaeval Art of Illuminative Writing Among Pennsylvania Germans.
By Henry C. Mercer.

The Decorated Stove Plates of Durham. By Henry C. Mercer.

These two publications are contributions to the history of Art in America, by Prof. Mercer, of the Pennsylvania University; reprinted, in pamphlet form, from the Proceedings of the American Philosophical Society, and of the Bucks County (Penn.) Historical Society, for public distribution. The first is descriptive of certain American specimens of quaint ornamental penmanship, originally executed with various colored inks, in a style of art that long since languished and finally succumbed to the higher and more economical arts of modern engraving, etching and electrotyping. It is illustrated with fine full-page plates faithfully reproducing, by photogravure, every detail of the beautiful and elaborate work save its colors.

The other pamphlet treats of decorated plates of cast iron, brought to light in Bucks county, regarded for a time as facings for the backs of old-fashioned fire-places, but finally identified as component parts of stoves. "They demonstrate," says the author, "the fact that the mediaeval art impulses of Germany crossed the Atlantic to survive, for a time at least, among the stern and material conditions of the Pennsylvania backwoods. . . . The cumbrous stove plates, the floriated earthenware recently investigated by Mr. E. A. Barber, and the illuminated handwriting lately rescued by ourselves, reflecting gleams of color, legends and ancient themes of beauty from an unlooked-for corner of the wilderness, surprise the investigator." Prof. Mercer is distinguished among our scientists for his industry, accuracy and versatility. In geology, anthropology or archaeology; as a historian or antiquarian, he is equally at home, proficient in every study; always vigilant and observing, and investigating everything with the same patient and thoughtful diligence. In cave explorations among the hills of Yucatan or Tennessee; in looking up the pottery wheel of the Maya Indians, or delving in the shell heaps of Maine; in the depths of prehistoric archaeology or rummaging among the historic relics and old domestic appliances of early Pennsylvania pioneers, nothing worth noticing escapes him; and his labors are characterized by the same painstaking care, and rigid regard for exact facts. His way of describing what he knows, or has seen or found, is such as to invest the most common-place subject with heightened charm and interest, and his conclusions invariably spring from logical reasoning and sound judgment.

Contributions to Indiana Palaeontology. Part 1. By George K. Greene. New Albany, Indiana, February 28, 1898.

Mr. Greene departs from the usual practice of writers in science, by publishing the results of his studies and discoveries independently, instead of contributing them to some periodical specially devoted to his line of work. In this first part he has three pages of well-executed illustrations of new species, chiefly of fossil corals, from the Devonian (Hamilton) group of rocks forming the falls of the Ohio river; and seven pages of amply descriptive text. He states in his Preface that he has material in hand for sixty plates, which will be issued in parts, three plates with descriptions of the figures to constitute a part, offered for sale at 25 cents each. Mr. Greene's enterprise is very worthy of encouragement, and should receive the support of all geologists interested in that branch of the science.

Bulletin of the New York State Museum. Vol. 4, No. 18. November, 1897. Polished Stone Articles, used by the New York Aborigines before and during European occupancy.

This is the second report of the series on the prehistoric remains of New York, authorized by the Regents of the State Museum, and prepared by Rev. Wm. M. Beauchamp, of Baldwinsville. It describes the polished objects of stone manufactured and used by the former Indian inhabitants of that State. We find this monograph the equal, in every respect, of Mr. Beauchamp's preliminary report on "The Aboriginal Chipped Stone Implements"—noticed by us in our March number—and has, similar to it, many pages of admirable cuts from drawings made by the author. It is arranged with perfect system, and the several descriptions of the great array of rare relics are in this well-known author's best style, interspersed with many references and important suggestions. The numbers of finely polished and curiously designed talismans, charms, implements and ornaments of Striated Slate, and of pipes, tubes, etc., of strange and unique forms, illustrated and tabulated, are surprisingly large, and prove the New York aborigines to have been as far advanced in the higher arts of the stone age as any of those in the Mississippi Valley. This Bulletin, as before stated, will be followed by others on local pottery, on objects made of copper, and on implements and ornaments of bone, horn, wood and shell.

When completed this compilation will be a work of high credit to its author, as well as to the Empire State, and of great value to all archaeologists.

Our Savage Predecessors is the title of the fourth and last series of historical papers recently written by Hon. D. R. Leeper, of South Bend, Indiana, and published in the Times, of that city. The preceding three, we presume,—not having seen them—were reminiscences of early pioneers, and their struggles, in that region so intimately associated with the thrilling events of its French occupancy, Indian hostilities and subsequent conflicts for supremacy between the civilized conquerors of the native race.

This reprint, with above title, in six pages, is illustrated with a fine portrait of Mrs. Angeline Ship-she-wanna, a civilized Pottawattomie Indian; and also with a "speaking" likeness of the author; and is descriptive of several of the old local Indian strongholds, villages, battle-grounds and cemeteries; and recounts, in graphic style, many of the customs, habits, usages and certain personal histories of the savages once the sovereigns of these broad prairies and great lakes, but now gone forever.

We heartily concur with Hon. Daniel McDonald in his opinion that "it is fortunate for South Bend that so diligent a student as Senator Leeper has become interested in the early history of St. Joseph Valley"; and will add that it is fortunate for the country at large that this cultured and scholarly gentleman has consented to share with the public the fruits of his years of study, investigation and experience.

NOTES.

With the turquoise mines and their prehistoric workers which were lately discovered in California by Dr. Gustav Eisen and his party of explorers is connected a very interesting legend. Dr. Eisen speaks of it in the following manner: "It would be strange indeed if no legend should exist among the Indians now and then roaming over the desert, legends connecting these turquoise mines with the ancient inhabitants who worked them. One such legend really does exist and, strange to say, it does not in the least conflict with anything we found in connection with the turquoise mines and the hieroglyphics on the rocks, but rather confirms the story told by them. The legend moreover helps to explain how these numerous workers of the mines could live in this inhospitable region of blizzards, sand and scorching sun, where water is the greatest luxury and where even no edible root or vegetable does grow at the present time. It is almost absolutely certain that even in ancient times, when these mines were worked and when the hieroglyphics were cut, the climate was the same as now, neither better nor worse. The wild animals on the desert are so few that they could not possibly sustain any considerable population of, say even a few hundred Indians. The least rare animals are the chuckawalla, a large edible lizard; the desert turtle, the cottontail rabbit and the jack-rabbit. As the water is everywhere so scarce that no corn could be raised in the vicinity of the mines, the laborers must have procured food from more distant places. The legend in a manner confirms this and makes it probable that the turquoise stones were not dug for use as ornaments by the workers themselves, but were used as objects of trade with different nations.

"The following legend was told us by an Indian, known as Indian Johnny, son of Tecopah, the chief of the Piutes. His father, the chief, who died at an advanced age last year, told the legend to his son just as he had got it from his father. The legend bears much evidence of being based on facts.

"Thousands of years ago, says Indian Johnny, these plains and hills were the dwelling grounds of the desert Mohaves, of which now only a few are left. At that time there came suddenly a tribe of Indians from the West or South in search of precious stones. They fell in with the desert Mohaves and made friends with them. They found out about these mines, and they worked them and took out a great quantity of stones. These Indians from the South were different from the Mohaves and from any other Indians living in this country. They were much fairer, their skin as well as their hair was lighter. They were also much more civilized and knew of a great many things which no other Indians knew then nor now. They knew how to work mines, and they also knew how to write. They made the writing in these rocks, and they soon taught the Mohaves how to do as they did. These foreign Indians were no fighters, and they lived in peace with the desert Mohaves. But the Piutes, to which tribe I belong, did not like the Mohaves to learn new things. When the Piutes saw that the Mohaves began to cut signs in the rocks and work mines, they said that they were crazy, and decided to make war on them. This they did, and the foreign Indians and the greater part of the Mohaves were exterminated. Since that time, which must have been 1000 years ago, these mines have not been worked by anyone. This is the tale of Chief Tecopah and his son, Indian Johnny.

"It must be confessed that this legend is plausible. We know that the Aztecs as well as the Casa Grande Indians possessed many turquoise ornaments. We also know that the Aztecs during their highest power sent out expeditions in order to get gold, and my esteemed Mexican friend, Don Benigno Garcia, has repeatedly told me that there was good reason to believe that those Aztec expeditions for gold were principally directed to the Altar district in Sonora, on the Gulf of California. We also know that there was and is yet a race of comparatively fair and red-haired Indians in Southern Sonora and Northern Sinaloa. These Indians are the Mayos (not Mayas, which latter are a different race in Yucatan), the only fair Indians of which we know anything definite. It is therefore most plausible and probable that in prehistoric times a tribe of Mayo Indians may have crossed the Gulf of California and wandered toward the north searching for turquoise mines, the existence of which was perhaps known to them. They fell in with the Mohaves, found the mines, worked them and established a trade in turquoise stones with the Southern Indians in Mexico, Arizona and Colorado. Such trade exchange alone would enable these Indians to live and subsist for any length of time in such an inhospitable country as the desert where the mines are. That this trade must have been principally, if not exclusively, with the Mexican races may be concluded from the fact that so far no turquoise mines have been found in old Mexico. Of course, the Aztecs procured also some of their turquoises from some New Mexican Mines, and possibly also from some in Arizona. In old Mexico the Aztecs valued the turquoise more than gold, and some large fine stones were said to be worth more than a load of gold each.

The turquoise was also the emblem of Montezuma, and so sacred was it considered that after the death of Montezuma no stones were allowed to be taken from a mine which was known to have furnished stones to him."

Recently Dr. Walter Hough lectured before the Philosophical Society of Washington, D. C., on the origin and range of Eskimo lamps. The lamp, he said, is a prerequisite to migration into higher latitudes, and the Eskimos must have had it before they emigrated from their original home, which was probably farther south and near the sea-coast. But the form of the lamp becomes more specialized the higher the latitude is. The lamps of southern Alaska have a wick edge of two inches, while those of Point Barrow and Northern Greenland have wick-edges of from seventeen to thirty-six inches. The lamp is employed for melting snow and ice to obtain drinking water, for cooking, lighting, warming, drying clothes, and in the manufactures and arts. It is also a social factor, and the sign of the family unit, each head of a family, the woman, having her lamp.

While excavating for the foundation of a new barn, in an almost unknown valley of the Little Beaver, near Lisbon, Ohio, a farmer named Vandergreen unearthed one of the rarest archaeological objects ever found. It is a block of sandstone carved to represent the human head. Not knowing its scientific value he carelessly threw it aside. While at work on the building he conceived the idea to ornament the foundation with the stone head, a sort of a corner-stone as it were, where it remained for several years. During this time it served but one purpose. This was to make of it a target for the boys of the neighborhood, who, when near, continuously pelted it with stones, unfortunately partly destroying it. It was saved from total destruction by a local archaeologist, who saw that it came into possession of the Smithsonian Institution, where it will have a safe resting place.

"The cave was the first human habitation. When the art of shelter-building came in, the cave was given over as a home for the dead; and when abysmal caves were found, what could be more natural than to recognize them as avenues into an underworld? I was impressed with this thought as I wandered on and on in the weird and wonderful labyrinths of King Solomon's Cave at Cumberland Gap—and when the guide told me that he had gone on for thirty-six hours to find the end, and found it not, I could not myself avoid the fancy that this gloomy and yet splendid road led to somewhere—that it was not made for nothing—that, far beyond, it must open into a kingdom or a country that had never seen the light of the sun—an underworld which is a wonderworld, where strange people and strange creatures dwell. So most naturally imagined the primitive mind. Virgil was but recording that which to his age was fact and history when he described the descent of Æneas into the vast, dismal and terrible land. Virgil found the upperworld entrance to Acheron and Tartarus located in a dense forest. Our Teutonic ancestors, without knowledge of the Greek mythology, similarly made their imaginary way to Helheim. As the Greeks thought of beauty, so the Teutons thought of winter and storm—of the hoar frost, the moaning wind, the black water, the precipitous and rocky walls and the black giants rimmed with icicles.

"As caves were the first human habitations, they have remained the treasure houses of the earliest history, art and literature. They have preserved to us a record of the dawn of human intelligence in the first tools of flint-flakes and of rudest stone axes, and continued the record up to the full blaze of Egyptian civilization. But for the protection of the caves we would know but little of the earlier conditions of the race.

"When man gave over his cave to his dead as a dwelling place, the underworld became the after-life world in his imagination. It was damp, chill, dark, often filled in the volcanic regions with sulphurous or other mephitic vapors; and thus he added by his imagination to the natural terrors of death. Virgil was the first poet to break the gloomy spell by setting his Acheron, his paradise, over against his Tartarus, and thus Christianity has ventured to claim him from paganism. The next great poet of the underworld was Dante. He relapsed to the ancient paganism and outdid the horrors of the old Chaldean poets. Following him came Milton, a better artist, who excelled Virgil and all who had gone before in the beauty of his lights and in the gloomy grandeur of his shadows."—W. C. G. in the "Interior." Chicago.

Of the stone implements and pottery found at the now celebrated turquoise mines in California, Dr. Gustav Eisen has of them to say the following: "One of the most important reasons for believing that the mines were alone worked by a prehistoric race is the finding of numerous stone implements in the pits. These tools are all made of very hard lava and basalt, and mostly of very fine workmanship. We found three kinds of tools, the majority being stone hammers made of basalt rock. The stone hammers are of various sizes, from six to eight inches long, beautifully smooth and rounded, each

with a wide central groove extending across three sides of the hammer. Besides these hammers, we found also axes of various kinds of rock. The axes are of different sizes, from six inches square and upward. They taper toward the edges, and are furnished with a groove running all around the center for the secure holding of the handle. One of these axes was of gigantic size, about three feet long, and so heavy that both hands were required to handle it. While some of the tools are yet in the best state of preservation and of fine workmanship, others are much chipped and battered or even broken up, showing that they have been in actual use.

"In the immediate vicinity of some of the springs and the caves fragments of pottery were found. These were of considerable size, but so broken up that no idea could be had of the shape of the vessels. None of the pieces were painted, and many of them showed no ornamentation of any kind. Some pieces, however, were most interestingly ornamented by deep impressions representing long parallel lines alternating with short, straight, parallel bars of even size, running in a slanting position against the longer lines. The time at our disposal for exploration was too short to allow of excavations for more perfectly preserved pottery; the indications are that such pottery will be found only when the caves are explored."

Professor Allesen, of the Berlin Geographical Society, has made some remarkable discoveries in Dawson's island, a lone island in the Pacific. It is, he says, one of the most wonderful places ever visited by man. Stretched out before us was a broad tableland, probably three miles in extent and utterly devoid of vegetation. For the most part it was as smooth and flat as if leveled by the hand of man, and upon it were strewn masses of wonderful ruins in all stages of decay. Here were the remains of buildings that had probably once been well-formed structures, and the last crumbling remains of walls of which only a few feet now remained standing. Far in the distance rose a huge pile that crowned the extreme edge of the plateau and looked majestically out over a deep volcanic ravine that extended for hundreds of feet below. Around this on all sides could be seen the ruins of structures in the last crumbling stages of decay.

The natives took us around to the side of a mountain, where they said the workshops of this long dead people had been located. This side of the mountain was of hard volcanic rock, which rose in a series of ledges of from ten to fifteen yards each to a peak several thousand feet high. Upon each ledge was a number of gigantic stone heads. Some were cut off at the neck, while in others the whole bust was shown. They ranged in size from ten to thirty feet high and were hewn out of solid volcanic rock. Some of the images were standing erect; others thrown down upon curious platforms, that looked as if they had been specially constructed to hold them and upon which they probably had once stood. Others again were broken, and some had tottered so far over that they seemed ready to crash down upon those below. All the faces bore a striking resemblance and the expression was most sinister. In each case the head was long, with protruding chin and expanded nostrils, and all of them appeared to be the faces of men. The whole place is full of the most remarkable archaeological remains.

The mummies of three mighty monarchs were recently sold at auction in London. They were Alpina, queen of Babylon; Antiochus Soter, king of Assyria, and the Pharaoh, Ptolemy Philadelphus, king of Egypt. Alpina was the royal consort of King Selucus, who was assassinated by the brother of Ptolemy Philadelphus. Antiochus Soter was the son of Alpina who, upon his father's unnatural death, inherited all his domains. Ptolemy Philadelphus, or Ptolemy II, was the son of Ptolemy I, and Berenice. He was born 309 years B. C. in the island of Cos. Under his rule Egypt rose to a high rank among the nations in power and wealth. He truly may be called a great king.

It is said that Mr. T. S. Tait, of Phoenix, Arizona, has one of the largest and finest collections of aboriginal objects in the territory. He recently purchased from Pima Indians thirty-four stone axes and two large pieces of pottery, who dug them from prehistoric ruins in the Sacri river reservation near the above town.

What he values more than anything else is one of the axes, an absolutely perfect specimen, the first he ever discovered. The edge is as unbroken as that of a new steel ax and it is hardly less sharp. It is beveled precisely alike on each side and is highly polished. There are two rough spots on the poll, showing that the piece of stone was a trifle short and could not be ground down to a polishing surface without destroying the symmetry of the implement as the prehistoric artist had designed it. The axe is about eight inches long, a trifle longer than most stone axes. The stone from which it is made is the same used in the manufacture of all these axes. It is harder than steel, for steel will not scratch the polished surface. The name of "balset" has been given to this stone and geologists say that the quarries from which it was obtained have never been discovered. There is no stone even resembling it in color, hardness and grain.

Professor Eisen, of the Academy of Sciences, San Francisco, California, who accompanied the party to investigate the now famous turquoise mines, found there many interesting stone implements. These tools found in the pits are all made of very hard lava and basalt, and mostly of very fine workmanship. The stone hammers are of various sizes, from six to eight inches long, beautifully smooth and rounded, each with a wide central groove extending across three sides of the hammer. Besides these hammers were found also axes of various kinds of rock. These axes are of different sizes, from six inches square and upward. They taper towards the edges, and are furnished with a groove running all around the center for the secure holding of the handle. One of these axes was of gigantic size, about three feet long, and so heavy that both hands were required to handle it. While some of the tools are yet in the best state of preservation and of fine workmanship, others are much chipped and battered or even broken up, showing that they have been in actual use. Professor Eisen sums up the finds as follows:

"The relics left of this prehistoric race of Indians in California consist of five different items, each one of which is of great interest, but which when taken together may well be said to form an open page of the history of a now vanished race, which, when properly read and deciphered, will reveal to us the arts, life history and the semi-civilization of a race of which we until now have known almost nothing. These relics which now confront us are as follows: Exterior mines of precious turquoise stones of very high quality; series of highly complicated hieroglyphics, numbering tens of thousands and extending for twenty or thirty miles around the turquoise mines; hundreds of caves immediately below, or in the rocks in which the glyphs are cut, and in which caves there is every reason to believe that the mine workers of this ancient race dwelt while they were working the mines; numerous stone implements of the best workmanship, used in the working of the mines, and which implements are now found not only scattered over the surface of the ancient turquoise pits, but actually found in the mines, where they have been left by the miner, expecting to return and resume his work, when the war, to which perhaps he was suddenly called, would be over; pieces of pottery with impressed, not painted, ornaments."

For many years the ancient Egyptians were renowned for mathematical sciences: but it was not till the power and wealth of the country were at their zenith that full scope was given for its display in the grand style of public monuments; a fact sufficiently indicated by their increase of scale and vastness of size at that period, the buildings of olden time being generally of much smaller dimensions than those of the advanced age of the eighteenth dynasty. This is particularly true of the temples and the colossal statues erected at the latter epoch, which far exceed in their scale, and the size of the blocks themselves, the ordinary monuments of the earlier era, as may be observed in the increased proportions of the grand hall of Karnac, added by Rameses the Great, and the dimensions of the sitting colossi of Amunoph in the plain of Thebes; or that of Rameses at the Memnonium, which weighed about 886 tons, and was brought overland from the quarries at the cataracts of Syene, a distance of more than 120 miles.

The "explorer of Floridian mounds" who discovered in one of them a menagerie of animals made of terra cotta, an account of which we quoted last month from "Our Animal Friends," we omitted to state, was Mr. Clarence B. Moore, of Philadelphia, whose great work in the investigation of the immense shell and sand mounds of Florida was noticed in this magazine a few months ago. One of the shell mounds opened by Mr. Moore covered thirty-five acres and was forty feet high.

Dr. Gustav Eisen, of the Academy of Sciences, San Francisco, California, who was the principal member of the party which explored the prehistoric turquoise mines in the above state, and of which so much has already been written, says of the hieroglyphics occurring there over an area of dozens of square miles, of which he made careful examination:

"The most interesting feature in connection with the turquoise mines is that they are always accompanied by picture writing or hieroglyphics. Wherever one of these turquoise mines is found we can be sure to find hieroglyphics in the rocks surrounding them. The Indians who worked the mines must have been the same ones who cut the glyphs in the rocks.

"The hieroglyphics are found only on the bluffs of basalt rock which abound in the vicinity of the mines. This rock is the hardest one to be found in that country, but its smooth surface offers unusual advantages for the cutting of glyphs and pictures. The glyphs occur from ten to fifteen together on the same stone, but generally only two or three are found together and frequently only one on each basalt block. Most of the

glyphs are cut on isolated blocks, which have fallen from the cliff above; sometimes they are found on the flat wall of the cliff. They are found along a stretch of country fifteen or twenty miles long and must be counted by the tens of thousands. In some places almost every block in the debris below the cliff carries a glyph. On some blocks which stand upright we found a glyph on each face, showing that the blocks had not been disturbed since they were cut. The glyphs are cut or picked in the rock by some hard instrument, most likely stone hammers. As regards the nature of the glyphs in general, they are much more complicated than any so far found in California or in any other State north of Mexico. They show a mixture of distinct types. One, the rarest type, represents figures composed of simple lines, curves and dots; figures resembling suns, stars, crosses, anchors, bars, etc. To this group must be counted rough representations of animals and men, but of the former very few were found, such as snake, owl, turtle, rabbit, lizard and man. One picture represents a warrior with a large feathered cap standing on another warrior who has fallen, a figure reminding one greatly of Aztec picture writing. A wavy line stood on two opposite sides of a bend in the cliff, signs indicating the direction in which water was to be found some miles away. But by far the most interesting form of hieroglyph was the shield type. Some of these were three to four feet high and of most complicated design. The illustration represents three of these. This type is composed of a shield-like outline, inside of which we find lines and circles and cross hatching, in such a way as to leave no doubt in my mind that every line was intended to be of importance. In the Aztec picture writing there is nothing of a similar character, except coat of arms shields, which stood for and indicated certain villages, cities or chiefs. But a closer resemblance is, strange to say, found in the hieroglyphics of the Mayas of Yucatan. There we find some of the glyphs in the form of shields, to which often is attached a wing very strikingly similar to the one seen in one of the glyphs found by us. This similarity in some of the glyphs is so marvelous that it entirely baffles us to explain it, except as coincidence. At least it cannot now be demonstrated that these glyphs had an actual relationship with those of the Mayas, which were composed of dots and bars, the dot standing for one, the bar for two, etc. But so interesting are these our new-found glyphs, that they should be recorded at once, and decidedly recorded in the way they follow each other on the rocks, and not noted down haphazard, as it is more than probable that if they could be read successively and deciphered they would tell an interesting tale of the prehistoric race who worked the mines and who sculptured the glyphs on the rocks and blocks in the vicinity."

Mr. Warren K. Moorehead, a contributor to *The Archaeologist*, and one who is well known to its readers, is at present a resident of Phoenix, Arizona. He is enjoying himself there digging in the ancient Pueblo ruins, and is making very interesting discoveries. Recently, six miles south of Phoenix, in a desert ruin, he unearthed an olla measuring twenty-six inches in diameter, one of the largest ever found. The ruin is considered by him a very rich one, and he expects to find other implements of great archaeological value.

The government inspector of antiquities, Leopoldo Batres, recently arrived from Oaxaca, Mexico, where he went to supervise excavations which are being made by Mr. Saville, of the Museum of Natural History, New York City. Mr. Saville is engaged in making excavations at Jojo, three miles south of Oaxaca. He was unsuccessful in excavating for antiquities in one of the pyramids near Jojo, but on digging into another elevation of the same kind located two hundred and fifty metres from the other, he discovered three nicely-made idols, similar in design, and another different. All were in perfect condition. They were found standing on a very large piece of rock facing the west. In other pyramids in the vicinity which he is about to open, he expects to find treasures of great archaeological value. Mr. Saville seems to think that the above antiques are a product of Zapoteca civilization.

Several persons, while digging a ditch on a farm near Lemoore, California, unearthed twenty-four small objects of stone of aboriginal manufacture which were made in imitation of cannon. They are all of similar form, from four to seven inches in length and finely polished. What they were used for none of the finders were prepared to say.

In the following, which the editor of "Notes" has clipped from "The Watchman," Boston, Massachusetts, there is considerable more truth than poetry: "It is well to remember that some of the writers who lived two or three thousand years before our era were just as great liars as any that modern times have produced. You must not believe all you read on a clay cylinder."

A Mr. William Niven, while in a remote section of the State of Guerrero, Mexico, where he, for the past several months, has been conducting explorations and excavations, came across a hermetically sealed cave of large proportions which contained the skeletons of a dozen or more men of prehistoric age. Near Zumpango del Rio, Mr. Niven discovered a clay bank containing many human bones several feet below the surface. Mixed with these bones were different articles of household use and personal adornment. From the position of the remains and the other circumstances, including the geographical location, it would appear that a large number of people were overtaken by a flood or earthquake and perished.

Recently was found at the pueblo of Cochiti, near Albuquerque, New Mexico, an interesting prehistoric object having the shape of a spearhead or assagai. Two holes cut near the barbed portions of the head were evidently used for thongs of raw-hide to bind the implement firmly to the pole. The object was presented to the Albuquerque Historical Society by the owner, one of the citizens of the above place.

The skill with which ivory and other carving was done in Egypt 5500 years ago is amazing. Reclining lions, hunting dogs and fish are so skillfully reproduced that one asks how many centuries of development must have preceded before the art of carving reached this perfection. A number of feet taken from the legs of small chairs and other similar furniture, and made in imitation of bulls' legs, show such a fixity of style and at the same time such a freedom of execution that no archaeologist, without the report of the excavator, would dare to proclaim them the oldest dated works of Egyptian art. But it was not only in carving ivory, which is easy to work, that the Egyptian artists showed their skill. They also made bowls and vases of diorite and porphyry with the same success; and the forms presented by the smaller ivory vases are also to be found in vases made of those refractory stones. Further, the vases made of stone present not merely such forms as might be made by turning or boring, but there are also bowls with ribs which are as finely polished as the turned bowls. The hardest material used in the objects already found is rock-crystal, of which several small flasks and bowls and a little lion are composed. But the lion, it must be confessed, is rather rudely worked. A few small vases of obsidian also occur—remarkable in view of the fact that we do not know of any place in or near Egypt where this stone may be found. Besides these vessels of hard stone, there are, of course, a large number made of softer stone. Alabaster vases occur in every conceivable form. Cylindrical pots, with wavy handles or simple cord-like ornamentation, appear to have been especially favored. The great beer jars, closed with enormous stoppers of unbaked clay, were made or ordinary baked clay.

It might certainly be productive of unusual emotions to know that the few human bones found in the tomb and now preserved in the Ghizeh Museum, once belonged to the oldest Egyptian king. But as we know almost nothing of him, except some unfounded traditions, this sort of relic worship deserves very little respect. The scientific value of the proof that Menes was the king buried in the royal tomb of Neggadeh lies rather in the fact that we have now settled the question of the age of that culture which was presented to us by the excavations of Ballas, Neggadeh and Abydos. The products of a whole period of Egyptian civilization which had been misunderstood, and had been used to support false historical conclusions, fall into their true place; and our knowledge of the history of Egyptian culture is carried back not merely a few centuries, but to a period presenting characteristics different from the oldest previously known period, but containing the germs of the later development.

A. F. B.

THE AMERICAN ARCHAEOLOGIST.

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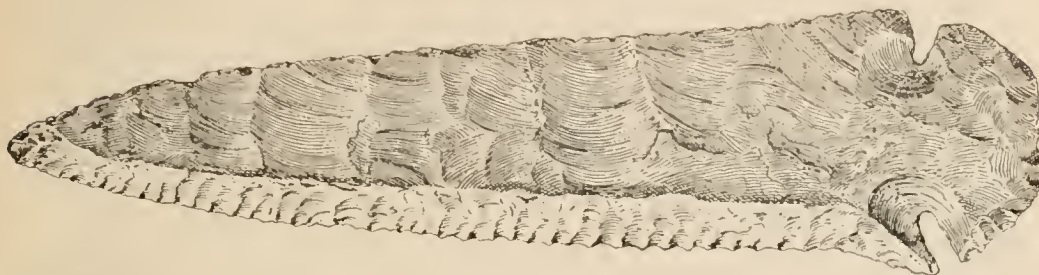
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Editor of the Archaeologist: •

In the Antiquarian for June, 1897, there was published an article by myself entitled "A Classification of Arrow, or Spear-heads or Knives." The classification was as follows:

- I. Leaf-shaped.
- II. Triangular.
- III. Stemmed.
- IV. Peculiar forms.

Of the latter division, IV, Peculiar forms, class A, comprises those with beveled edges. They will be immediately recognized by archaeologists and collectors of relics of the Indians by the figure.

A description of experiments made by the author, forming a portion of a larger work now in preparation, regarding the rotary motion possible by these

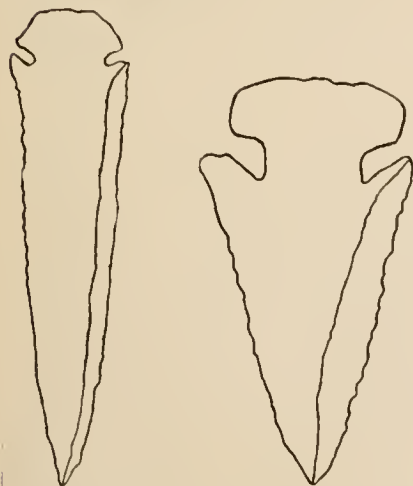
beveled edges, may not be without interest to your readers.

Yours very truly,

THOMAS WILSON,

Curator, Division of Prehistoric Archaeology.

The Smithsonian Institution, Washington, May 20, 1898.



CLASS A, BEVELED EDGES.

The blades of arrow-heads are usually chipped from both sides so that the edges are formed on the central line. A cross section would be elliptical. This class, A, is peculiar in that the chipping by which the edge is formed is done from one side, and the edge is thrown or beveled to the plane of the other side. A cross section will be rhomboidal, the two long sides being the width, and the two short sides or edges being the thickness, of the blade.

It was for a long time believed that the bevel-edged arrow heads were simply freaks of the workmen and were without signification or intention for particular practical purpose. Indeed, that belief has not entirely passed away: Since commencing this paper, the author, in order to demonstrate the truth of the matter, inaugurated a series of experiments. Selecting from the museum-collection a dozen or more representative specimens, he attached to each an arrow-shaft, smooth, straight, without feathering, and the same size throughout. Repairing with these to the top of the tower of the Smithsonian building, he commenced by letting them drop straight to the ground, carried only with their own gravity; and next launching them in the air in every direction. He found a universal rotation. He pushed his experiments further by arranging these specimens in a sort of clamp of wire, the ends of which embraced the ends of the arrow-head, care being taken to put the point of contact at the two ends and as near the center of gravity as possible. Thus held, the implement was free to rotate longitudinally in either direction on the application of the slightest force. This machine was then used by pushing it with its suspended arrow-head rapidly through the water, the resistance of which also produced a rotary motion. A more conclusive test was made at a machine shop, where the arrow-head, hung as aforesaid, was presented point foremost to the pipe of air from the driving fan, when the current of air immediately set the arrow-head revolving. When the force of the current was increased, it increased the rapidity of the rotary movement; when the arrow-head was turned about so as to present its base to the current of air, no rotary motion was produced.

These experiments were continued, and extended to include any and every kind of beveled-edged arrow-head, and always with the same result. It was obvious that the arrow-head at rest presented to a rapidly moving current of air would have the same effect as an arrow-head shot from the bow. Most of the specimens of bevel-edged arrow and spear-heads are champhered one way so that the movement usually was from right to left, contrary to the motion of the sun. All specimens of this kind employed in our experiments had that rotary motion from right to left. A few specimens, however, are made with the bevel the other way, and when they were presented to the current of air, their rotary motion was in the opposite direction.

It is proper to add that these experiments were pushed to such an extent and in such manner with such repetition of the same result, as to be conclusive that, whatever may have been the intention of the maker of the arrow-heads, the fact was, that in their flight through the air the beveled edges produced a rotary motion.

While it would appear that this rotary motion must have been intended by the arrow-maker when he made the beveled edges, yet the difficulty of solution of the problem is much increased when we consider the greater ease, the less labor, and the increased facility with which he might have accomplished the same rotary motion by putting twisted feathers on the arrow-shaft. Yet we find this exceeding rare. Out of a thousand arrow-shafts in the U. S. National Museum, not more than a dozen have been found with twisted feathers.

It was once thought that the peculiar bevel-edge of these implements might serve to determine whether the prehistoric man used one hand more than the other, that is, whether he was right or left-handed. If it could be determined that in the chipping he was required to work with one end of the implement towards him, then it might afford some evidence upon this question. But these implements are only a few inches in length, and can be held in the hand either edge up or either end foremost; and so what might seem to require on the one end right hand, and on the other left hand, work, can all be accomplished without changing hands, but simply by turning over the arrow-head. Therefore, these implements, however peculiar they may be, afford no information, and furnish no evidence on the question of right or left-handedness of prehistoric man.

The bevel-edged arrow-head is peculiar in its distribution. It is confined to the interior and southern United States.

NOTES ON DELAWARE INDIAN VILLAGE SITES—THE VALLEY OF THE BRANDYWINE.—NO. 8.

The valley of the Brandywine is probably the most important spot in eastern Pennsylvania to solve the problem held by some of our foremost archaeologists that successive peoples are attracted to the same localities, and build and reside on the ruins of those of their predecessors. The writer has passed fully half a century in this most beautiful, grand and historic valley, rich in archaeological treasures not only of the modern red Indian, but of his predecessor and his successors; but we will confine our remarks at this time principally to the mementos left us by the Delaware Indians, alluding incidentally to earlier occupants only as the text requires.

We begin our description of the Indian village site which extends from the confluence of the small stream, Brandywine, with Durham creek, and about one-half mile west of where the latter stream empties into the Delaware, to where formerly a monster white oak, a monarch of the forest, stood, which measured over five feet in diameter, and which was several years ago shattered by lightning during a fierce thunderstorm. Ofttimes while exploring the locality the great branches and grateful shade of this immense tree was sought to shelter us from the sun's rays while preparing our notes.

On the eastern banks of the Brandywine, where it empties into Durham creek was a large implement manufactory and Indian dwelling place,¹ with numerous cooking sites, etc. About thirty years ago portions of the village, with the exception of the extreme south corner whereon was built the residence of James Morgan, ironmaster of the Durham, 1728, iron works, and where General Daniel Morgan, of Revolutionary fame, was born, was yet in its primitive condition, the other portion of the village having been cultivated for nearly a century. After the timber had been removed from the site about thirty years ago, numerous caches² containing arrows and spear points were exposed by the

¹This village site occupied the north banks of Durham creek, and was admirably located on the sunny side of a large deposit of glacial drift. This deposit was at one time continuous for several miles, but has been cut in two by the erosive action of the waters of the Brandywine. During countless ages this stream has eroded a wide and deep channel and unites its waters with Durham creek. The Indian trail from Pechoqueolin and other Indian villages leading to the important Indian treaty place in the Durham meadows passed through this Indian village—hence we infer that this place was much frequented by Indian warriors to obtain supplies of arrows, spear points, etc., manufactured here.

²The caches were composed of arrows and spear points, and covered with eight inches of soil. They were principally of argillite and apparently carefully distributed at

plow; also pendants, celts, banner stones, hammer stones, net sinkers, pitted stones of various sizes, broken pestles, etc. Very little pottery was unearthed here.

In selecting this site for an arrow and spear point manufactory, respect was had to the convenience of the locality to the raw material. Ready access to food and water, and the physical advantages offered for transporting their implements when manufactured entered largely into the calculations of the primitive artificers and determined their particular field of operation.

That such was the fact, may be readily inferred from the presence of extensive deposits of premoraine drift, suitable for net-sinkers, axes, pestles, hammer stones, etc. Within half a mile of this place was the large prehistoric jasper quarry, where jasper and chalcedony in all their varieties could be conveniently obtained, and, if need be, transported in an hour's notice to the manufactory. A short distance west from the jasper quarry chert, milky quartz and red hematite abounds. The Delaware river, Durham creek and Brandywine were a never failing storehouse of food. The adjacent forests and rich soil afforded ample cover for game of various sorts, while at the same time their cleared fields yielded heavy crops. At that early period the woods and waters were replete with animal life. The shad and sturgeon at certain periods could be obtained in the Delaware river in countless numbers, while in Durham creek and Brandywine perch, catfish, trout, suckers, sun fish, eels and other varieties of fish were found in abundance. These waters teemed with this favorite food of primitive man. Reptiles, many of which were utilized for food by these peoples, crawled beneath the shadows of the grand old oaks. Mulberries, plums, an orchard which was yet bearing early in the present century; crab apples, walnuts, hickory nuts, from which supplies of oil could easily be obtained. This was a region attractive to primitive man, as well as it is now to his successor. The indications are that it was occupied by primitive man for ages. That the Indians were numerous throughout this valley is attested by the ancient and numerous implement manufactories along the Durham creek and Brandywine, and the high grounds adjacent to the stream—by their burial grounds, occasional tumuli, observation mounds, etc.

The predecessor of the Indian also left mementos of his presence in the glacial debris in the shape of teshoas, rude chipped axes, war clubs, ice picks, etc.

Those of our readers who have followed us in our notes put out through the kindness of the accomplished editorial staff of the *Archaeologist* may recall the fact that we noticed numerous implement manufactories while describing Indian village sites along the Delaware river; even away back in the swamps and out-of-the-way places. These swamp workshops or implement manufactories were on a very small scale compared to the workshops at Pechoqueolin jasper quarry, Durham creek and Brandywine.

As before mentioned, this fertile section was capable of sustaining a large and permanent population, and the highlands where these primitive people delighted to congregate to hold their feasts, etc., were accessible at all times.³

the same depth, and each cache contained from twelve to fifteen whole arrows, and a few spear points. Twelve or thirteen of the caches were nearly on a line, about twelve feet apart and about one hundred feet from low water in Durham creek. The remaining caches were scattered and close to the old Indian trail, a portion of which is now occupied by the Morgantown road. A singular circumstance about these deposits was that the surface of the village site was strewn with chips of jasper, quartz and argillite, while the caches as far as our observation extended consisted of argillite arrows and spear points only, while on the surface jasper, argillite and quartz arrows were abundant.

³Many wonderful things were told us of these primitive peoples. How in the fall of the year at their feast, usually held in November, at their cornfields on the hilltops, with

Many of the relics discovered by the writer indicate that the Indians living here traversed great distances from their homes. Within the limited region under discussion were discovered by the writer a bead of steatite, a pipe of catlinite, beads of shells native to the coast of Florida, and stone implements, whose material must have been transported from a distant geological horizon. Long experience and careful examination of discovered relics enables the practical archaeologist to designate with almost unfailing certainty the locality where the various arrows, spear points and other flaked implements were manufactured, which have been found in the region under discussion. It is curious to note the similarity in form and style of the implements found in this locality. They not only proclaim the locality where made, but the geological horizon where the material for their manufacture was obtained.

These primitive open-air workshops exist not only along the banks of the Delaware river, Durham creek and Brandywine, but are found also in secluded ravines near springs of water at a considerable distance from the main prehistoric village sites and manufactories. In this particular locality to which attention has been directed, by far the greatest number of arrows and spear points were chipped from jasper and argillite. Others are manufactured from chalcodony, rose colored quartz and a few of trap rock. Although several thousand of the finest relics have been picked up in these village sites and implement manufactories, yet at intervals in going over the ground, we again find fine specimens which are turned up by the plow. Many rude specimens are found on the various sites, a description of which is deferred for the present. About five hundred yards north of the main workshop is the site of an old Indian field, along the east side of this field being several mounds, twenty feet in diameter by six to eight feet high in a north and south line. They were plowed down in 1855. Nothing having been found therein, we must infer that they were used or constructed for observation purposes. The Indian field remained surrounded by forests as late as 1855, and contained about seven acres. In the clearing a number of stone axes and other stone implements of unique design were found. The latter were perhaps used as emblems or may have been fetiches. They were chipped sandstones, rounded, from five to ten inches long, slightly curved and tapering from two inches down to less than an inch in diameter. About two hundred yards due north were a number of stones planted on edge, which the early settlers said were placed there by the Indians. Before these stones were seen by the writer as early as or before 1840, they, according to Mr. Wm. Walters, numbered fifty or more. These stones were slabs of Potsdam sandstone, and the nearest point from which they could have been obtained was at least two miles distant from the primitive crematory or burial place. One solitary stone used as a corner or boundary on lands belonging to the writer and Miss Ida Riegel remains, the others were used to build a wall of a neighboring barnyard. They were from three to five feet high and about fifteen inches wide by three inches in thickness. How these primitive peoples transported them this long distance through a dense forest is a problem not easily solved.

CHARLES LAUBACH.

Riegelsville, Pa.

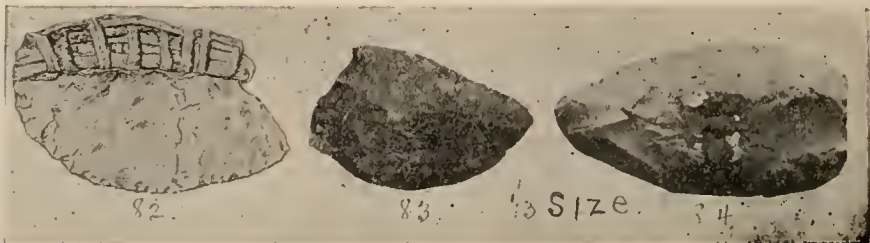
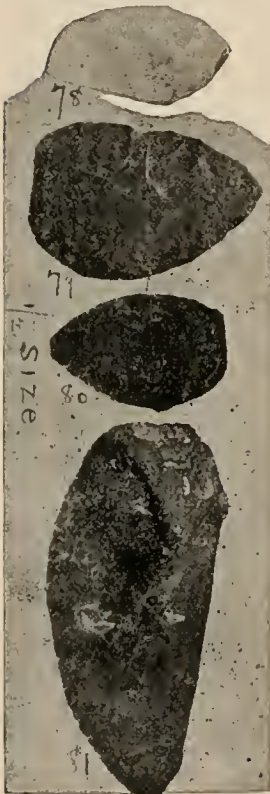
bonfires burning, they performed many mysterious rites. With wild noises and fierce gestures the warriors danced, waving cornstalks or brandishing fierce weapons of war—the forest re-echoing with their wild shrieks. In their intense sympathy with nature, whose children they were, they in their strenuous movements mimicked the wild animals of the surrounding forests. Then how this fantastic spell was broken by the appearance of the great medicine man, who from his medicine bag produced a tablet of stone, engraved with mystic characters; how he scanned the tablet, and brought forth the origin, primitive struggles, and renowned prowess of his people in ancient times, and their imaginations towards this land of plenty.

PREHISTORIC REMAINS OF THE TUNXIS VALLEY.

BY FREDERICK H. WILLIAMS, M. D.

KNIVES.

We find a large variety of implements which differentiate from scrapers and spears on one side and tomahawks, celts and fleshers on the other. Of the chipped class, much the finer specimens were doubtless men's weapons, but in the polished types the highest evolution was in woman's sphere of tools. Reserving a description of the weapon class for another heading, we will here outline those forms presumably domestic. The simplest of all were flakes struck off by one blow from a pebble, but the Tunxis Valley offers few suitable minerals for such flakes. We can only point to one object of a whitish opaque quartz, which was taken by the writer from the side of an excavation about three feet deep, during the trenching for the Bristol reservoir; Fig. 78. Its artificial character is plain and its location very singular. A good many rudely-made knives have been found, chipped mostly on one edge, some of which seem to foreshadow the later polished skinning knives; Figs. 79, 80. Fig. 81 represents a most beautiful example of artistic chipping. It is of "hornstone," and chipped only on the blade, but work upon it is as fine as many specimens of Scandinavian art. Prof. Mason* illustrates one of these knives, showing us the "primitive form of grip" or handle which we imitate; Fig. 82. In Fig. 83, we give a knife from Farmington exactly like it. Fig. 84 illustrates apparently a very ancient example in red sandstone. When one of these knives is held lengthwise, blade uppermost, along the hand, it will be seen to curve from one end to the other. When held properly the outlining of the edge sweeps from the forefinger in a gentle curve inward to the thumb. But if the knife is reversed the curve is away from



KNIVES.

* O. T. Mason, Primitive Industry, p. 46.

the thumb. It seems only possible to cut a straight line when the curve sweeps along the natural curve of the hand from the thumb to the index finger, so we think this shape is intentional, not accidental.

In Fig. 86, one-third natural size, we give a very fine example of a skinning knife made of green slate from Plainville. The reader will readily see how closely it resembles a New England hash knife. These knives seem to have been made by grinding only, and are pre-eminently the woman's tool. Fig. 87 represents another fine example, also from Plainville. There is another beautiful one made of black slate in the Bristol Museum. A very large, exam-

ple is shown in the American Museum of Natural History, New York, from Bloomfield. Dr. Abbott, among many thousand diverse tools, only found one in New Jersey.* Fig. 89 is a singular, if not unique, little knife from Burlington. It was obviously made to be hafted and would have cut up cooked meat very readily. A well-made knife blade of such a curious substance as red shaly sandstone is shown in Fig. 90. Fig. 91 seems very old. Fig. 92 is from Bristol.

CELTS.

We now come to one of the most beautiful classes of all our Indian tools, the celt.† Upon these stones the ancient craftsman lavished some of his choicest skill. They are the most universal of all worked implements. A fine collection shows a wonderful variety of color and texture in stone, although all are made of heavy and tough materials. They were first pecked into shape and then polished more or less completely. The more common



KNIVES.

forms of Connecticut are quite round in outline, yet many are oval or nearly flat. All typical celts agree in having a sharp blade, worked axe-like equally from both sides, so as to be nearly symmetrical. So very seldom are they grooved that the writer recalls only one example, from Wisconsin. Some archaeologists have denied that they were ever hafted, yet one is exhibited in the

* Abbott, *Stone Age in New Jersey*, p. 303.

† From celtis—a chisel.

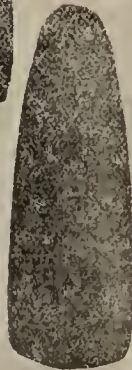
American Museum, N. Y., found in a brook some fifty years ago. It is driven about half way through a well-made handle, and may have been either a tool or a weapon. These tools are generally thought to have been used in working wood. Probably they were employed also in rubbing down hard skins, as the Indian squaw doubtless used whatever tool came handy. As chisels, they may have been pushed by the hand, but many show decided signs of having been vigorously pounded, as a joiner pounds his chisel. Working with no guide but his eye, no tool but a stone hammer, and no measure but his hand, one is amazed to see how perfect some of these objects have been made. Fig.



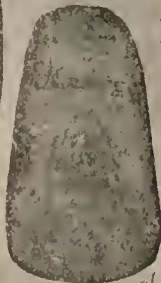
93.



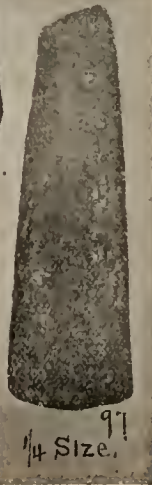
94.



95.



96.

97.
1/4 Size.

CELTS.

of a plane. It tool in working taking a very this class have and simply chip-treme edge only of long use. All be carefully col-

THE PESTLE.

Schoolcraft* writes that raised along the Connecticut leys, and coarsely reduced in mortars of This meal was our New England "hom-has never seen any mortars of stone from he considered to have been used for such thinks our aboriginal mortars were made dition says pepperidge trees. (Nyssa Mul-

Schoolcraft § pictures a Pennacook Hampshire, pounding corn in a mortar, ground beneath a tree. Above it there is cord to an overhanging limb a stone pestle.

93, one-fourth natural size, is a very perfect black celt from Burlington. Fig. 49 (r), from Farmington, is more flat, with its sides squared and beautifully polished nearly all over. Fig. 95 is almost a twin to 93. Fig. 96, shows a wider celt with expanding blade, made of a very dense, black stone from Granby. Age has given this a beautiful "patina" of mottled bluish-gray and white. Only where a plow nipped one corner can the true color be seen. The depth of the weathering, while the polish of the stone remains as perfect as when made, would seem to indicate a great age. Its blade has been used until the edge is well battered down. Fig. 97, found by the writer in Plainville, differs from the others, in being flat and very thin. While perfectly shaped by pecking, only two inches of the blade has been polished. One side is flat while the other is bevelled off after the manner

would be a very serviceable charred wood, and capable of sharp edge. Implements of been found made of quartz

ped out, the ex-showing the polish such stones should lected for further study.

Indian corn was and tributary val-stone and wood. iny." The writer this section that a purpose. He of hard wood, tra-tiflora).

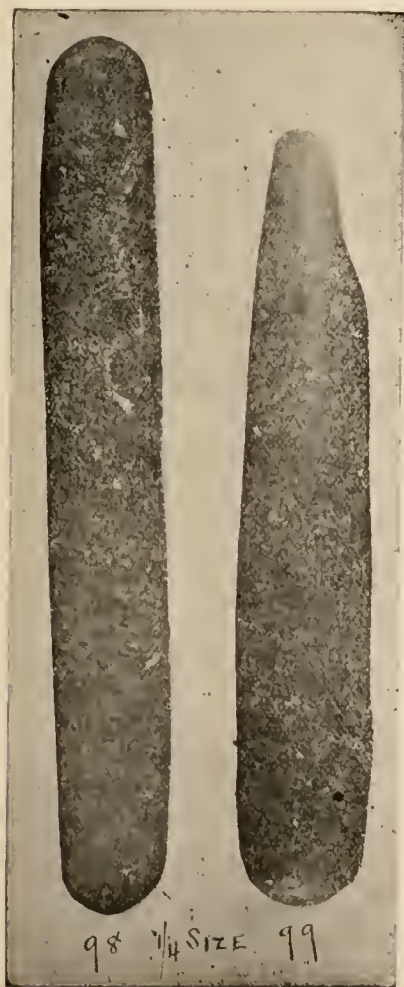
squaw of New which is on the attached by a long The rebound of

* "Archives of Aboriginal Knowledge," Vol. I, p. 84.

§ Ibid, Vol. 4, p 174.

the limb seems to raise the pestle and her hand gives it the downward blow. The writer cannot help the suspicion that some of Schoolcraft's pictures of life are quite imaginary; still he has seen numerous pestles with projections or grooves on the end, perfectly adapted to such suspension. Schoolcraft† also pictures a pestle with an animal's head on the upper end, saying that it was "a family name wrought by a symbol," what we should call a "totem." Two such pestles are in the British Museum, but not from the section we are describing.

Pestles are quite frequently found, and being such conspicuous objects, usually reported to collectors. They never seem to have been polished, except from use on their working ends. Therefore in them we may see the art of pecking brought to its



PESTLES.

highest elegance, and many such objects are indeed most fair to look upon. In Fig. 98 is shown a pestle from Bristol, found by the late Caleb Matthews on Chippins Hill, seventeen inches long. Fig. 99 depicts an extra fine pestle from Farmington. Made of a dark material, it is evenly pecked into a perfect shape all around. In another respect this pestle may be unique. It certainly is a novel example of ancient stone art. Although made of a very hard stone, a hole of unknown depth, about one-half of an inch in diameter, has been drilled into its working end. Into this hole another stone of a yet harder nature has been perfectly fitted, the whole being ground off evenly smooth. We have also another pestle in which a similar hole has been begun, but left unfinished. The perfect pestle was found perhaps fifty years ago by an old negro who dwelt upon the site of the old Indian village. This old fellow had an ex-

† *Ibid.*, Vol. 3, p. 466.

ceedingly verdant memory, which reached backward several centuries while describing his remembrances of the ancient red men, as he saw them shooting their arrows across the primeval reaches of the meadows. The writer must now redeem a pledge made to the old man a decade ago when the pestle was reluctantly given into his keeping—to immortalize both the pestle and its finder. Jacob Sampson Freeman, for half a century the custodian of this last vestige of some Sagamore, cherishing it almost as a fetich, he became involuntarily an humble disciple of science. May his memory remain as green as his imagination, as his shade gambols through the happy hunting grounds. Our pledge if fulfilled. Requiescat in pace.

To the Editor *The American Archaeologist*:

Referring to Mr. Harlan I. Smith's letter in the March number of the *Archaeologist*; as the point raised is one of some importance intrinsically, I would like to make the following observations: That much that is not jade, as the mineralogist regards it, goes under that name in archaeological reports is undoubtedly true. The term is a much abused one, and if Mr. Smith had been content to make this general statement, I should have had nothing to say against it. But as I read his remarks they seem to charge me with hasty and uncritical judgment in speaking of the green boulders of Lytton as nephrite. That all the green stones of that area are not of that material I know; but certainly was not prepared to learn that less than 20 per cent. of them were. On Mr. Smith's own showing only a few fragments were critically examined, and I have yet to meet the specialist who will risk his reputation by asserting, on a mere handling of an uncommon stone, that it is of this or that kind or class. I venture to think that if Mr. Smith will have those boulders he took from Lytton (my remarks referred to no others) bearing marks of grooving upon them critically examined, he will find that over 90 per cent of them will prove to be fair, typical nephrite, as I stated mine to be. I do not stand alone in regarding these boulders as nephrite. When Dr. G. M. Dawson, director of the Dominion geological survey, an authority whose opinion Mr. Smith will not, I think, call in question, was in this city last summer, he came to see my collection and, with me, regarded these boulders as jade, or nephrite, of more or less pure quality. As he had himself some years before discovered some of these boulders at Lytton, he was the more interested in my discoveries, and called my attention to a publication of his own on "The Occurrence of Jade in British Columbia and its Employment by the Natives," a few paragraphs of which I will ask to be allowed to quote here, after which I will ask permission to cite a few lines from Dr. B. J. Harrington's paper on these stones. The quotations are mine:

My attention has been specially drawn to the use of jade by the Indians, by the occurrence of two partly-worked small boulders of that material on the lower part of the Fraser river (at Lytton and Yale respectively), and the discovery, in 1877, in old Indian

graves near Lytton of evidence that the manufacture of adzes had there been actually carried on.

These facts seem to point to the "valley of the lower Fraser, or to that of its tributary, the Thompson, as one, at least, of the localities from which jade has been derived" though, so far as I am aware, it has not yet been found in situ in any part of British Columbia. The partly worked boulders to which allusion has been made, are more particularly described below. They resemble in shape and size the well rounded stones which are abundant in rough beaches along the more rapid parts of the Fraser river, and present a peculiarity in polish which is often found to characterize these stones, and which appears to be due to the action of the sand which is drifted by the wind along these beaches during periods of low water.

All the circumstances, in fact, tend to show that they may have been "picked up on the immediately adjacent banks of the river." (This surmise I have proved to be correct.) The term jade is here used in a somewhat general sense as no exhaustive mineralogical examination of the various specimens has been attempted, though a typical piece of the Fraser river mineral from the vicinity of Lytton, which has been examined by Dr. B. J. Harrington, "proves to be a true nephrite; and other analyses of specimens from the same region render it probable that most, if not all of the jade there found is referable to the same species."

The implements here "collectively classed as jade" all have, however, the characteristic lustre, texture and fracture of that mineral, and a mineralogical hardness of between 6 and 7.

The colors represented are very varied, as the subjoined enumeration will show, and several more or less blended tints often occur in the same specimen.

"The implements and fragments here particularly referred to, are those derived from the region above defined" (Lytton), which are in the museum of the Geological Survey of Canada; or deposited in the Peter Redpath museum of McGill College, in Montreal. The specimens referred to, classified according to color, arrange themselves as below:

Grey greens to greenish greys; pale and dark, generally streaked or mottled; translucent to sub-translucent and opaque, 23. Dark greens, varying from leek-green to sap green and generally translucent, 15. Browns, shading to greenish and greyish, generally streaked, opaque, 7. Pale bluish and yellowish greens, translucent, greyish-blue and bluish-grey, translucent (probably pectolite), 6. Green and grey, and green and black, mottled, 4. Total, 55.

Of the above specimens, 55 in number, 17 show evidence, more or less distinct, of having been sawn in the manner subsequently noticed."

If these remarks, from so eminent a mineralogist as Dr. Dawson do not authorize me in speaking of the Lytton jade-like stones as nephrite, then what use is the opinion of a specialist to the archaeologist, and when may we rely upon their statements? Now as to Dr. Harrington's opinion after a mineralogical examination of four typical Lytton stones:

In 1887 Dr. G. M. Dawson published a paper on the occurrence of jade in British Columbia in which he calls attention to the fact that implements composed of jade (nephrite), or "some closely allied material," were widely diffused in that province. The materials included under the term jade varied considerably in character, and only one specimen had been examined critically. This, however, had been shown by the present writer to be a true nephrite. * * * *

In British Columbia no nephrite has been found in situ as yet; but in addition to the numerous implements referred to above, unworked jade in the form of small boulders has been found in a number of localities. * * * * In order to prove that the specimens referred to as nephrite really consisted of that material, four of them have been studied.

From this follows a description of them which corresponds so closely to the majority of the green boulders at Lytton that there is no doubt in my mind that the stones I have termed nephrite are mostly of that material. The following is the analyses of the four specimens examined by Dr. Harrington:

	No. 1.	No. 2.	No. 3.	No. 4.
Silica	55.32	56.98	56.54	56.96
Alumina	2.42	.18	.40	.51
Ferrous oxide35	4.59	3.61	3.81
Manganous oxide52	.17	.16	.53
Lime	14.00	12.99	13.64	13.29
Magnesia	20.16	22.38	22.77	22.41
Loss on ignition.....	2.16	2.64	2.92	2.91
	99.93	99.93	100.04	100.42

The foregoing descriptions and analyses, concludes Dr. Harrington, suffice to prove that true nephrites have been found in British Columbia; and on examining the analyses it will be seen that the composition of the Lytton nephrites is closely analogous to that of nephrites not only from Alaska (where they are found in situ), but from other parts of the world.

In conclusion, I submit that I am fully justified, on the authority here quoted, to speak of the green stones of Lytton as mostly of nephrite, or, at least, nephritic in character. The specimens chosen by Mr. Smith and myself for examination were not typical of that region evidently. One of them I know now was taken from a block of serpentine since identified by a local authority as such; and none of the specimens were taken from the grooved boulders, as we did not wish to mutilate them; so that while Mr. Smith's authorities may be quite correct in their analyses, as the specimens can hardly be regarded as typical, their conclusions do not conflict with those of my authorities; nor really militate against the statements I made in speaking of these green stones under the general term of jade.

C. HILL-TOUT.

Rockland College, Vancouver, B. C.

ON THE COUNTERFEITING OF INDIAN RELICS.

Unfortunately there is no law to prevent counterfeiting of this sort, and it would be difficult to secure general legislation relating to the matter. Probably the best means of checking the traffic is the education of our people; and this and many other institutions are engaged in this work of educating the people of the country by diffusing information, through correspondence as well as through publications.

There is really no occasion that any citizen should be deceived by a counterfeit relic. There are, in this country, a hundred experts able to detect nearly any counterfeit at sight, including a dozen who have never been deceived; most of this dozen are in the employ of public institutions and ready to pronounce ex-

pert opinion gratuitously on any specimen submitted to them; and in ninety-nine cases out of a hundred they are able and willing to form judgment on a photograph of the specimen, which would cost but a few cents. Hundreds of letters relating to doubtful specimens are answered by this bureau and the National Museum.

There are many other instrumentalities engaged in educating the people concerning the antiquities of our country, including the journal edited by you; and all are doing excellent work. In the absence of direct legislation, it would seem impracticable to do more at present toward the suppression of the traffic.

Appreciating your interest in the subject, and regretting the absence of legal authority to do more toward suppressing the manufacture of spurious relics, I remain, yours with respect,

J. W. POWELL

Director U. S. Bureau of Ethnology.

Washington, D. C.

I agree with you fully that something ought to be done to stop the trade in spurious antiquities. You can do a great deal of good by exposing the business in your journal, and I and others here will be glad to help you out in any way in our power. I will look into the prospect of securing action on the part of the government, and will consult with all the people here likely to be interested in the subject; but in any such movement we are always confronted by the realization that much time and energy must be spent in presenting the facts and educating people (who know and care nothing about such things, and who are usually too busy even to talk with us) up to the point of interest and appreciation necessary to effective action.

Speaking of fraudulent work I think the most flagrant case is that developed in the western part of the lower peninsula of Michigan. It is a most persistent and unscrupulous attempt to mislead the country into believing that traces of Oriental culture are found there. You probably know all about it.

W. H. HOLMES.

U. S. National Museum, Washington City, D. C.

Klingbeil Shoemaker, of West Market street, Philadelphia, now dead, made a lot of spurious Indian objects about fifteen years ago. He took in several collectors, including Dr. Abbott, until Putnam, I believe, caught him. He was never prosecuted, or arrested, but his doings here, causing distrust of any object of remarkable character or make, did much harm to the cause of investigation, a little after the time of the wrangle over the Davenport tablets and the discussion of the Ohio valley frauds. The Lenape stone came to light soon after, a subject which I shall again take up, as my belief in its authenticity has never been shaken. It was easy, conservative and safe for any archaeologist to rule out the Lenape stone at that time on general principles; to turn away from the subject, and finally to abstain from visiting the site of the finding, and ignore further investigation. That is the trouble with the Lenape stone now. It never had half a hearing. Klingbeil is still ahead.

I would despair almost of getting the kind of men we elect to our legislatures to pass a bill concerning the case. Would it be possible to call yourself and some friends at the office of the Archaeologist a Bureau of Protection, let us say? You could pass on relics at slight charge sent to you with data. Keep a black list for private circulation and publicly expose detected swindlers.

H. C. MERCER.

Indian House, Doylestown, Pa.

I shall take pleasure in furnishing you with certain facts, as well as any others that may come to my attention in the future. I believe a deal of good can be accomplished through the columns of *The American Archaeologist*, especially in warning beginners to be on their guard; and, further, I have strong hopes that such admonition and agitation will eventually lead to the enactment of laws adequate to reach the guilty. Many of the European countries have means for stopping the nefarious traffic and there is absolutely no reason why we should not succeed in finally attaining the goal sought.

My first subject is L. F. M. Nicholson, of Salem, Ind. This party sent me March 19, a pendant and pipe said to have been found near the salt licks of that place. No price was fixed. He requested me to give what I thought them worth. The workmanship was too fine and "peculiar." To allay all doubt, I sent a nominal sum to hold the objects and immediately instituted inquiries. Before returns could come in, however, two more pipes were submitted by the same party. A superficial comparison showed the bowls to have been drilled by the same instrument, besides these last specimens were covered with a mineral paint. Further, I learn from the parties themselves, but who unfortunately do not care to have their names mentioned, that they (a physician and the head of an academy) have been imposed upon by the worthy in question. In the present case a certain threat sufficed to bring back my money and I returned the relics. One thing I failed to do, namely to photograph them. It would be salutary to picture such things in the *Archaeologist*, providing space is available. Would you not think it advisable?

Another party whom I suspect and whom you have already mentioned in your letter of March 26, is Chas. R. Heston, Sidney, O. I bought a few of his Ohio "bird points" last fall, and as their uniformity staggered me, I submitted a dozen to the Smithsonian Institute for opinion. The answer came that Dr. Wilson considers "that in his opinion the objects are genuine, with the exception, perhaps, of one of them which may have been retouched." With all due respect to this opinion, I have come to regard these points with suspicion, all of them. They are mostly made from cherty flint, whose fracture is either dull or can be manipulated without great trouble. I present you with a specimen herewith. I know for a fact that Heston has had on hand at one time more than 300 of these points unmounted, besides the ones he offers on scarf pins, etc.

Another "suspect" is Dr. Levering, Jonca, Mo. A lady of Shannondale, Ind., received from said party two gorgets of a yellowish limestone slate. They were the rankest frauds I have ever seen in this line. A printer, of Koch, Ohio, sent me a gorget acquired from same party in payment for printing. Levering's ad. appeared in March number of *Antiquarian*, last year.

I had hoped to get something specific for you relative to the Robinettes of Flag Pond; but at present my suspicions will not permit of any public statements. They have genuine relics, I know; but thus far I have not succeeded in getting any compromising object, though two of my correspondents make serious charges against them. I have the feeling, however, that I may be "favored" with some of their productions. There is an E. J. Noell, a J. H. Robinett, and finally the better known G. W. Robinette. I believe them all to be in the same box.

A great drawback in this crusade is the unwillingness of those imposed upon to have their names mentioned. I think the false stand of such a position should be made clear to all readers of the *American Archaeologist*. There are still many to be educated up to the point of realizing that certain radical steps are absolutely necessary if we are to develop and promote a healthy love and interest for antiquities.

Assuring you of my heartiest sympathy and every co-operation possible,
I am, Yours very truly

W. O. EMERY

Wabash College, Crawfordsville, Indiana.

CORRESPONDENCE.

The Editor of The Archaeologist:

In the May number of your publication there are two communications regarding the manufacture of relics by the Pima Indians of the Salt River Valley, in Arizona. Knowing both Dr. Miller and Mr. Ogden personally, I desire to say, but in the kindest possible spirit, that these gentlemen do both the Indians and the valley somewhat of an injustice. The discussions regarding fraudulent relics which have appeared in the *Archaeologist* are timely. But I am inclined to agree with Mr. Seever that, strange as it may seem, the continual reference to these swindlers only seems to increase their trade. It is a surprising statement and apparently carries its own contradiction, yet it is true. The Virginia men who have been exposed repeatedly within the last ten years continue to make and sell large numbers of them. I know of no other locality which has furnished more than a few dozen frauds. The United States government could apprehend the Robinetts for obtaining money under false pretenses, and letters have been sent to Washington calling attention to the rascals. So far as can be ascertained nothing was ever done.

Remedies for all this evil lie in the hands of the collectors. Specimens bought of farmers, small collections picked up here and there can be safely classed as genuine beyond question. The statement that such purchases are preferable to those made from dealers would probably solicit a protest from the latter.

What then is to be done? The answer is simple. Use common sense and judgment and increase collections through work in the country or by correspondence with those who have reputation. There are many small collections for sale, and some of these contain valuable specimens. The purchase of single and unique or unusual types at a high price encourages fraud just as Mr. Seever states.

As to the relics made by the Pima Indians, it must be borne in mind that the conditions in the Southwest are vastly different from those of the moist climate of the East. A stone on which is carved a snake or an unknown figure may be as old geologically as any stone in the East. Geologists may say 50,000 or 5,000,000 years, that does not matter. The age of the carving—the work of man—is an exceedingly small per cent. of the age of the stone. In the East the cutting weathers until it looks almost as old as the stone. In the Southwest it may or may not weather, or at least only slightly; depending upon the conditions whether it is buried or upon the surface or lies in a depression or rests upon a knoll. Yet it may be a thousand years old. The dryness of the Salt valley need not be enlarged upon here. It presents a condition totally different from that of the East. On this account picture writings upon the rocks are frequently scarcely weathered, and although of designs manifestly not modern, look very fresh.

Many of the relics themselves are made of soft lime stone, a chalk formation, shales, etc. Others are made of hard granite boulders and sand stone. The softer stones have worn considerably all over and might be considered by collectors as frauds, whether dug from ruins or bought of Indians. Some of the cuttings on the harder stones look rather fresh.

In collecting the last season among the Indians I threw out fifteen or twenty stones which may have been made by them. Yet it is an open question. The price paid is not sufficient to encourage them in such work. Some fifteen or twenty which are open to discussion and some fifty or sixty stones which might be considered by collectors who have never been in the Salt valley and did not know the strange unheard of types which abound there, were retained and put in the collection. I do not believe for a moment that the Indians have made more than a few objects—and those exceedingly rude—if

they have made any. Mr. Tate, who has collected eight years in the valley, and Dr. Griffith, of Philadelphia, one of the best all-around scientists I have ever met, dug in many of the ruins near Phoenix. Quite a number of objects were found which appeared to be of recent make. I found a number myself. Yet these were all unquestionably prehistoric.

The Indians may make a few relics, but that they have the industry to manufacture large numbers I seriously doubt. Those objects of effigies or carvings which seem fresh in either Mr. Tate's collections or my own are open to discussion between archaeologists. There are more points in favor of the antiquity of one or all of them than against them.

WARREN K. MOOREHEAD.

Circleville, Ohio.

Editor of the Archaeologist:

Would you kindly inform me what relics of the Mound Builders might be properly called ethnological?

Harrisburg, Pa.

A READER.

All relics found in the mounds may properly be termed ethnological. The definition of ethnology is, "the science which treats of the division of man into races, their origin and relations, and the differences which characterize them."

And archaeology is defined "A discourse on antiquity; learning pertaining to antiquity; the science of antiquity."

The science of ethnology therefore comprehends the natural history of living races (varieties and tribes) of men as well as of those that have passed away; while only the arts and other remains of ancient man fall in the domain of archaeology.

The aboriginal people of both Americas were all of one race—excluding the Eskimos—the Indian, or American, race. Consequently, the relics of the Mound Builders are both archaeological, or antiquities; and ethnological, being the distinctive remains of the American race, or Indians, who constructed the mounds.—Editor.

Editor of The Archaeologist:

I have read with interest your recent notes on frauds, and the remarks of your correspondents. It is to be deplored that some vigorous action cannot be taken to bring the rascally counterfeiters to justice; but so long as enthusiastic collectors, who have more funds at their disposal than they have of archaeological knowledge, continue to encourage the manufacture of bogus relics by unscrupulous persons, and pay fancy prices for anything "unique," so long will the lambs continue to be shorn. Of course, there are exceptions; but as a general rule the ones who are imposed upon in this respect are beginners, or collectors, who allow their enthusiasm to overcome their judgment. Still, at times the deception is so skillfully wrought, and the final transfer so craftily made, that the most careful and conservative are sometimes the victims. The collectors who make it a point to specialize their acquisitions, I believe, derive the most benefit to themselves and render the greatest benefit to science, and are the least liable to purchase frauds.

To collect thoroughly in a given locality; or to labor to acquire certain types of relics, develops an expertness and a knowledge which is pretty sure to baffle the manufacturer of bogus relics; for the maker of the spurious article, like other criminals, will usually leave some clue, however slight, which will expose the fraud. Many collectors are located where they can advantageously gather certain types of relics, while other forms common in another locality may be entirely wanting. But, as a rule, collectors so situated, instead of endeavoring to excel where they best may, have a burning desire to acquire that which is the most difficult to them to secure. They will pay high prices for the articles they cannot secure in their territory; and it is this spirit which encourages the manufacture of bogus relics to fill these "long-felt wants" in the aching voids of our collectors' cabinets. It is the specialist who succeeds in all walks of life; therefore it is well to impress upon all collectors the advantage of specializing their collections. Let each collect that for which he is best suited both by geographical location and his practical knowledge of what he is to collect. In that he will also derive the most enjoyment; for we enjoy best that which we best understand.

Additions to a collection, in my opinion, should be made as much as possible by obtaining articles from the original finders, with all data obtainable. There is a desire in the hearts of nearly all collectors to possess some good specimens of copper relics. As the field where these copper relics are found is confined closely to the eastern half of Wisconsin; and the number of these relics being therefore comparatively limited, it has resulted in advanced prices; and has therefore opened a field for the bogus relic manufacturer. Now, I reside in the center of the copper relic field, and I would advise those who are not conveniently located for the collection of these relics to let this class

of implements alone; or, if they must have them, to send an agent to the ground and collect them from the finders. They can be gathered in this way cheaper than they can be purchased, and the collector would be assured of getting the best pieces as well as the poorest. Certainly the one who collects them from a distance will not get the best. It is a common occurrence for a collector to pay from five to twenty dollars each for copper relics of no great rarity; but on the ground they can be purchased of the finders, the farmers, at as reasonable figures as other relics can be purchased in other localities.

I note the remarks of Mr. Thomas Harper, in your April number, regarding the difficulty of detecting frauds in copper relics; and in this I must beg to differ with him. I have collected Wisconsin copper and stone implements for thirteen years, and I should therefore be somewhat familiar with their peculiarities. To one who understands them it is an easy matter to detect a fraud. In fact, my experience goes to show that a good imitation is almost an impossibility, and a fraud can be detected at a glance. Not that there are many frauds met with here, but I have seen a few. The majority of frauds in the line of coppers do not come from Wisconsin; but are usually manufactured in, and offered from, other states; but the so-called relics are, of course, properly labeled Wisconsin coppers. Aside from the deep corrosion and peculiar patina so familiar to an experienced eye, there are usually the deep weather-beaten ridges and delicate colorings which defy the counterfeiter. Then there are many little peculiarities of form, which are generally a sure guide. My remarks in the article published in the May, 1897, *Antiquarian*, call attention to these. Leaving the matter of corrosion out of the question, the bogus copper relics I have seen in the hands of collectors have been such ridiculous monstrosities that they plainly showed that the manufacturer himself had no more knowledge of the genuine coppers than had his victim. Now, I have no axe to grind in this matter. I possess several hundred copper relics which I have, in most cases, purchased from the original finders. I have never sold but two copper relics since I began collecting, and these I purchased purposely to send to a friend. Neither do I desire to discourage other collectors from entering the field; but rather the reverse; for I would like to see a better general knowledge of these beautiful specimens diffused among collectors. The field is ample for all who desire to enter it; and I would be pleased to advise those who are determined to have these relics as to the best course for them to pursue.

In conclusion, I can only urge those who contemplate their acquisition that in the absence of any general illustrated work on these copper relics for their guidance, to use caution, and to understand what they buy before they make the purchase. Copper relics are true to form in the minutest detail; true to color and general characteristics, and true to him who understands them.

H. P. HAMILTON.

Two Rivers, Wisconsin.

The American Archaeologist:

I have been very much interested in the articles appearing in recent numbers of the *Archaeologist*, regarding counterfeit Indian relics. The manufacture of counterfeit relics seems to thrive very well in Wisconsin. I have heard of factories for the manufacture of counterfeits located in a number of different points in Southern Wisconsin, but only one of them has come to my personal knowledge. This one is owned and operated by one Lewis Erickson and his brother, and is located a few miles out in the country from the village of Marshall, Dane county, Wisconsin. These enterprising gentlemen at one time kept a man on the road a good share of the time buying up poor specimens and disposing of the products of their factory. As they were constantly buying and selling genuine relics they had a good opportunity to dispose of their spurious ones. Their man visited me some two years ago and exhibited three as fine specimens as I have ever seen. They were somewhat upon the plan of those illustrated in your May number, but were much more elaborate. While not claiming to be any expert upon such matters, yet I was very suspicious of the specimens because they were of such rare shapes and were so perfect. On the same day one of the proprietors of the factory sold to another party in this city three other specimens very much resembling those that had been exhibited to me, although not the same ones. The purchaser, exulting over what he considered a rare bargain, called upon me the same day to show me his purchases. This excited my suspicion still more, and I expressed to him my doubts as to their genuineness. He had at a previous time also bought three other specimens from the same parties. Later on I had a talk with Emil Schanck, of Deerfield, Wisconsin, and he informed me that he had bought some specimens of these same parties at some time prior to that time and that he had his suspicions aroused and that he in company with Mr. Theodore Kumlien, of Milton, Wisconsin, had visited the Ericksons and had found them in the very act of making spurious specimens. He also stated that he had made them return money which he had

paid and that he had also been the means of their making returns to a number of others that had bought from them. Upon hearing this I communicated the facts to my friend here in the city and he put his matters in my hands for attention. I then wrote to Mr. Lewis Erickson, stating to him that the matter had been placed in my hands and that we knew that the articles were spurious and that he must at once pay back the amount paid to him, together with interest from the date the same was paid. In reply to that I got the following letter, omitting dates and names:

"Dear Sir—I received your letter and I see that Mr. ——— is not satisfied with the relics that I sold to him, but it is a fact that I never sold them to be genuine. I sold them for to be some of my curiosities and odd pieces of flint. Mr. ——— imagined himself what the pieces had been used for. I have only settled one case of this kind in full, but that man had a written claim against me, but I am willing to settle with Mr. ——— in the same way as I have done to others if he will let me know. Besides, nothing was mentioned in your letter whether I was to get my relics back or not. Please write and let me know."

In reply to this I wrote Mr. Erickson that we knew just what his representations had been and that if he wished to avoid public prosecution he must return the money with interest at once, and that upon receipt of the same we would return his spurious relics to him, he to pay the charges for the return. It was only a very few days before I received the money with interest and I thereupon instructed the purchaser to send the relics by express, charges to be paid at destination.

I have no doubt whatever that a person selling such things in Wisconsin could be criminally prosecuted under our statute providing for the prosecution of those obtaining money or goods under false pretenses. I further believe that any one who has been caught by spurious relics in any state, if they would take the same course which I took in this matter, could recover their money with interest. That, it seems to me, is a pretty good sort of a discourager to carrying on this line of business.

Yours truly,

W. W. GILMAN.

Editor of The Archaeologist:

On March 20th and 21st there was found, four miles north of this place, quite an extensive cache of flint and copper implements, of which I send you a photograph. This portion of Wisconsin, and particularly Manitowoc county, has been extremely rich in prehistoric stone and copper relics, especially of the latter. There is an extensive village site, beginning just north of the entrance to the government harbor piers, and extending continuously for six or eight miles to the north along the shore of Lake Michigan. The soil is very sandy on this tract; so much so as to render it totally valueless for agricultural purposes; and it is covered with a growth of scrubby pines and underbrush which grow on the numerous ridges formed many years ago by recession of the waters of the lake. In such places where the woody growth has been removed the wind has a good sweep when blowing from the lake and the sod is soon cut away by the drifting sand, and in these exposed spots the elements soon work changes in the landscape, cutting down some of the sand dunes and building up others. This constant shifting of the land surface has in years past, and does yet, frequently expose ancient burials often accompanied by various flint and copper relics, innumerable fragments of clay vessels and old fire-places marked by heaps of rubble stones. It was on this site, four miles north of the city limits, that this discovery was made. Two boys were walking over the tract looking for relics and one of them stepped on a heap of flint disks but slightly covered, and the rubbing of the flints attracted his attention, when an examination was made. One hundred disks from two to four inches long were taken out of this deposit, and one large flint, shown in the center of the cut, is ten and a fourth inches long and most beautifully made. This was all that was discovered on that day, and the boys returned to the city without having extended their investigation further, as they had no tools with them for digging. On the next day they returned to the place with shovels, and after sinking a trench about two feet in depth they came to an ochreous deposit about three inches thick of a reddish brown color. In this there were small fragments of bones badly decayed which crumbled to small particles when exposed to the atmosphere. In this deposit were found twenty copper beads that is somewhat remarkable in many ways. The largest bead is one inch copper beads that it somewhat remarkable in many ways. The largest bead is one inch long and nearly one inch in diameter. From this size they gradually taper down to the size of small marbles. Placed end to end the string is a little more than sixteen inches long. The largest bead weighs nearly two ounces, and the sixteen largest weigh half a pound. The total string of thirty-two beads weigh three-fourths of a pound. All are of superior workmanship, in fine condition and heavily patinated, showing great age. Many of them have curious little indentations on the outer surface of the character often seen on clay vessels, which may be visible in the accompanying illustration. There were also



found one stone bead about three-fourths of an inch long by half an inch in diameter, and fifty small copper beads as large as small peas, all of them perforated and very well made considering their diminutive size. Many of them were cemented together by the oxydation of the copper, and the cord upon which they were originally strung was in some places still intact, preserved by the oxydation of the metal. In one instance where several of the beads were cemented together, when broken apart the suspending cord plainly showed the fibres of the bark of which it was made. This was of a whitish color, and the material employed in its manufacture was of extremely fine texture.

The ochreous deposit mentioned above was of considerable extent, but I have not been able to ascertain its nature. It had stained most of the disks with its own color. The human bones imbedded in it had so far decayed that I was unable to preserve any of them; but a careful examination at the time of their discovery might have resulted in better success. Unfortunately, the deposit was uncovered in a careless and hasty manner by the boys, who had no idea of the value of close observation; their only object being to secure relics. The photograph I send you shows all the principal objects found in the cache except the greater part of the disks, of which about a hundred are omitted. It is an interesting and somewhat unusual find, and the copper necklace is the best example of the kind that it has been my good fortune to see.

H. P. HAMILTON.

Two Rivers, Wis.

Note:—Since sending you the above notes the boy who made the find has carefully searched the sand that was thrown out and he has brought me three more copper beads that belong to the string, making thirty-five beads in all in this necklace. A careful assortment now shows them to be in pairs, with the exception of the large central bead, which probably did not have a mate. The pairs are remarkably alike in size, form and general appearance. There appears to have been originally the central bead and eighteen pairs. This leaves two beads still lacking, if this theory is correct. The missing ones would appear to be one of the first pair next to the central bead, and the other one of the tenth pair. The string now measures seventeen and three-fourths inches placed end to end. The two beads would increase the length one and one-half inches. A careful search will be made for them, and I have strong hopes that they will be found.

H. P. H.

EDITOR'S DEPARTMENT.

DR. J. F. SNYDER, EDITOR, - - - - - Virginia, Ills.
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THE ANTIQUITY OF THE MAYAS.

Archaeologists have long since passed judgment upon the merits of the report that Dr. Augustus Le Plongeon gave us some years ago of his visit—accompanied by Madam Le Plongeon—to the ruined cities of Central America. That judgment was very favorable to the distinguished Frenchman, for he proved to be a close observer, and made some additions of value to our knowledge of remains left by the ancient Indians of that region. His excellent descriptions of what he saw, and scholarly account of his researches commanded general attention, and the keenest interest. As an explorer and learned traveler he ranks well with several of the eminent men who have both preceded and succeeded him in the investigation of America's grandest and most mysterious ruins. He has been accorded just praise as an accomplished archaeologist so long as he confined himself to the narration of facts, and reasonable deductions from those facts; but straying off into the realm of wild conjecture and extravagant speculations, having little more basis than an exuberant fancy, he can not expect science to follow him farther, excepting with searching criticism and doubt. We have neither the time, or space, or indeed the disposition, to engage in a review of his several books; but, with the preparation of having before read them, we must confess to some surprise on reading, a short time ago, in the New York Tribune, the following, purporting to be Dr. Le Plongeon's conclusions, given to his interviewer, on the origin of man in America:

"Lyell and other geologists," said he, "tell us that this is the oldest of the continents. It should therefore have been the first to evolve animal life and produce man. While we have evidence that the Maya race had attained a high degree of civilization more than 10,000 years ago, it is not improbable that, in a more primitive condition, they date back 100,000 or 200,000 years.

"From the architecture and symbols on a certain temple at Uxmal, hidden away in the forests, I have been led to believe that rites were practiced there from which were derived the secret ceremonies of the Egyptians, some phases of the Eleusinian observances and modern Freemasonry. Similar rites were undoubtedly practiced by the Quiches at Xibalda, in the mountains of Guatemala. Some of the symbols found in Chaldea and India appear to have been derived from the same culture center.

"Queen Moo, about whom I have written a book, was the wife of Prince Coh, and they ruled in Chichen, one of the ancient Maya cities. Her husband, who has since been known in Egypt as Osiris, was murdered by his brother, Prince Aac. From a stone urn in Coh's mausoleum I took his heart, which had been preserved by charring, and I now have a portion of it with me. Prior to this time Mayas had settled in Egypt. To that country Queen Moo fled shortly after her husband's death, and was known as Isis. The totem of Prince Coh (Osiris) was a leopard. A leopard with a human head (a veritable sphinx) surmounted his mausoleum in America. The same symbol is preserved in Egypt. In fact, a great number of words and letters, as well as ideas and practices portrayed in sculpture, now found in Egypt, were clearly derived from the original Mayas. In the Maya books we learn the true meaning of the tree of knowledge. The offering of fruit as a declaration of love was a common occurrence in the life of the Mayas, Egyptians and Greeks. Prince Aac courted Moo in this manner, but she repelled him indignantly.

"Plato says that the Egyptian priests told Solon, who visited them 600 B. C., that 9000 years had then elapsed since the old means of communication with the Western world had ceased to exist. Many historians have discredited these figures, because they thought such a lapse of time impossible. What we are now learning of the antiquity of remains in the East shows that this was not an unreasonable statement. Didorus Siculus attributes the discovery of the Western Continent to the Phoenicians. Portraits of Phoenicians, easily recognizable as such, were discovered by me in 1875 in the sculpture at Chichen, thus confirming the story. The existence of the American Continent was well known to the people who lived around the Mediterranean thousands of years ago.

"Nor must America be confounded with the lost Atlantis, of which Plato wrote, and which is identical with the land of Mu, of whose destruction an elaborate account is to be found in the Maya records. There are many reasons for supposing that the Maya civilization is older than that of Egypt. The Egyptians were no navigators. Their traditions point to an origin in the West. Some letters of their alphabet are formed in imitation of geographical features of the land of the Mayas. Other arguments might be added.

"Palenque, of which we hear so much, is younger than the cities of Yucatan. So, too, are the culture centers of Peru. Yucatan is the country in which to study ancient American history. No doubt there have been many migrations from Asia to this continent, but they are all recent. I do not think that the Jesup expeditions will find traces of men from Asia who date back more than 500 years before the Christian era."

All this will do very well if the great doctor, in telling it, was merely testing the gullibility of the newspaper man. Surely no one would seriously offer such airy phantasms for scientific conclusions. Dr. Schlieman, Mr. Haynes, Prof. Flinders Petrie, and other practical archaeologists, who have laid bare the foundations in Assyria, Babylonia, Egypt, etc., exposing the remains of cities, in some instances to the number of seven or eight, built successively one upon the ruins of another, and all buried and lost for many centuries, literally dug out their discoveries by patient and persevering labor. When archaeologists of this class tell us that a comparatively high state of civilization existed at Nippur sixty centuries ago, they are not indulging in vapory speculations; for the pick and spade—the most reliable oracles of pre-written history—have demonstrated the fact thereby producing undoubted evidence of it.

Does Dr. Le Plongeon offer similar proof to substantiate his marvelous statement that the Mayas "attained a high degree of civilization more than 10,000 years ago," and probably "date back 100,000 or 200,000 years?" Has he dug down beneath the broad terraces of Uxmal and Copan, or the immense artificial mounds of Palenque and Izamal, to see if they rested upon ruins of older temples and cities erected by the original ancestors of the Egyptians and Phoenicians?

Prof. Henry C. Mercer has clearly shown, not by Diodorus Siculus, but by the pick and spade faithfully wielded in the hill caves of Yucatan, that no primitive people preceded the Mayas in the occupancy of that country; and that they arrived there, at no very remote period, already considerably advanced in mechanical arts. It is the consensus of opinion of the most eminent archaeologists that many of the great stone buildings in Central America, Yucatan included, were occupied by those who erected them, or their immediate descendants, at the time of their discovery; and, in some instances, for many years after the Spanish invasion. Mr. Stephens says: (*Incidents of Travel in Yucatan*. New York, 1848. Vol. II. pp. 408-9). "We had seen, abandoned and in ruins, the same buildings which the Spaniards saw entire and inhabited by Indians, and we had identified them beyond question as the works of the same people who created the great ruined cities over which, when we began our journey, hung a veil of seeming impenetrable mystery." In proof of the comparatively modern character of the ruins Mr. Stephens found in those at Tuloom, Kabah and Chichen wooden lintels supporting the masonry over the doorways, yet in sound condition though exposed in that humid climate, and enveloped in dense, damp forests. And further: (Vol. II. pp. 341-2-3), in a mound at Kantunile a sepulchre was discovered containing three skeletons so much decayed that they could not be removed. At the head of the skeletons were two large terra cotta vases with lids of the same material. In one of these was a large collection of Indian ornaments, beads, stones, and two circular carved shells (*gorgets*), the carving in bas relief and very perfect. "The subject is the same in both," he says, " * * * though differing in detail it is of the same type with the figure on the Ticul vase, and those sculptured on the wall at Chichen. The other vase was filled with arrow

heads, not of flint, but of obsidian; and as there are no volcanoes in Yucatan from which obsidian can be procured, the discovery of these proves intercourse with the volcanic regions of Mexico. But besides these, and more interesting and important than all, on the top of these arrow heads lay a penknife with a horn handle. * * * The figures carved on the shells, those little perishable memorials, accidentally disinterred, identify the crumbling bones in the sepulchre with the builders of Chichen, of those mysterious cities that now lie shrouded in the forest; and those bones were laid in their grave after a penknife had found its way into the country"—from Europe.

Beyond question the architecture of the Mayas and Quiches is wholly American in its origin, growth and development; and has no prototype, or similitude anywhere in the eastern hemisphere. The graphic system of the Mayas, comprising pictures, ideograms and phonetic signs, differed entirely from that of the Aztecs, and was undoubtedly an independent and sporadic development without the slightest resemblance to the hieroglyphic writing of Egypt or that of any other country.

From the most authentic sources of information regarding the obscure history of that strange region and its people it is inferred that the great stone buildings at Palenque were erected not earlier than the eleventh century of our era, those at Copan possibly earlier; and that the Indians who built and occupied them had probably not yet arrived in that country, or entered upon their wonderful course of culture development at the time the Son of Man was nailed to the cross upon Calvary. The introduction of wild, baseless theories to embellish American archaeology is not scientific, but pernicious folly. Dr. Le Plongeon gained some fame as an archaeologist by his visit to Central America; but if the interview before quoted is reliable, assured success and greater renown await him in the more genial sphere of romance, where the laurels of Jules Verne and Emile Zola are easily in his grasp.

It is not surprising that extreme tension of popular interest, among all classes, in current, and expected, events during the progress of the war should detract attention from favorite literary and scientific pursuits indulged in times of peace. In common with other promoters of literature in this country we are experiencing the effect of this temporary change of enthusiasm pervading the public. The eager desire to know what is transpiring, or about to transpire, at the front leave no time to think of archaeology. But while the exciting, stirring present claims our time and thoughts, we should not be forgetful of the past. The treacherous and cowardly destruction of the battleship Maine and its 266 men is not all that we should remember in this conflict with the Spaniards. The blood of our own murdered marines cries aloud for vengeance; but there also comes to us, from a period more remote, an appeal for vengeance from the blood of other murdered Americans; from that of the Inca people of western South America; from that of the Sun worshiping Aztec followers of Montezuma in Mexico; and of the Mayas, Quiches, and all the other defenseless natives who were robbed, tortured and butchered by the beastly Spanish invaders. It is well that our gallant soldiers, who are now hastening forward to uphold our national honor, should remember the Maine; let them also recall the period in early American history when Spain was supreme on this hemisphere, and remember the heartless cruelties of Pizarro; the brutal slaughter of Indians by Cortez, the fiendish barbarities of De Soto, Coronado, Alvarado and all the rest of the gold-crazed Spanish marauders who cursed this land with their presence and hideous crimes. Let them also remember the minions of the Spanish inquisition who, impelled by ignorance, superstition and fanaticism, burned the Maya codices, destroyed their sculptures and temples, and, with religious frenzy,

masacred people more intelligent and in every way superior to themselves. Let them remember, too, all the atrocities and tyranny practiced by Spain in the misgovernment of her American provinces, down to her oppression and abuse of the Cubans; and the inspiration of these memories will add to the valor and patriotism of our troops a higher conception of the righteousness of their cause, and give to their retribution the sanctity of justice.

In this number of our magazine we present the briefly expressed views of a few prominent archaeologists on the growing evil of counterfeiting Indian relics. Of several letters we have written to well-known dealers in these objects throughout the country, for information, and for their opinions of the best course to pursue, for suppressing the swindlers, but one has been answered. That one was addressed to Mr. J. R. Nissley, of Ada, Ohio, a reliable, conscientious man, who would disdain to countenance any semblance of dishonesty in his dealings. The silence of the others is subject to various constructions. It may be, as Mr. Seever and others insist, that buyers, "collectors," are chiefly to blame for the flourishing trade in these frauds, by creating a demand for them. Logically then, innocent persons upon whom counterfeit money has been imposed should be held responsible for its manufacture. Of course buyers ought to know the quality and character of what they buy; but unfortunately all buyers are not expert archaeologists; and some of the scoundrels who put fraudulent relics upon the market have, by long practice, become so skilled in this industry that they now turn out imitations so perfect as to deceive the most astute experts. We think very favorably of the "Black List" plan suggested by Prof. Mercer, and will probably adopt it.

A correspondent, of recent date, says: "Yesterday I received a letter from Mr. Claude E. Range, of Trenton, Mo., who says he has been supplying collectors in his neighborhood with ceremonial crooks (of flint) obtained by him from Mr. Robinette, of Flag Pond, Virginia. Mr. Range seems not to be aware of the true character of the Robinette crooks." We will mail to Mr. Range a few copies of the *American Archaeologist* and enlighten him.

BOOK REVIEWS.

Light and Fire Making. By Henry C. Mercer. Philadelphia, 1898.

Professor Mercer assumes that a time was when primitive man was without fire; and asks: "Who then discovered it, and how and when?" It had always been our opinion that fire preceded man on the earth; and the first evolved ape-like troglodytes found it in the flaming forests, or naphtha beds, or coal outcrops, ignited by the lightning's heat, or the seething lava, or incandescent volcanic scorlae; and learned to utilize it, and subsequently to produce it artificially. Let that be as it may; this fourth contribution of Professor Mercer's to the history of early American contrivances, like the three that have preceded it, is a charmingly written pamphlet, illustrated by forty-five small but expressive cuts. It was read before the Bucks County, Pa., Historical Society, and treats of old time modes of supplying heat and light, from the Indian's friction methods, by rubbing dry sticks together, or by the bow drill; and the pioneer's steel and flint, and tinder box on to our parlor matches; then lighting with rush lights, tallow dips, grease wicks, and on through their development in lanterns and lamps up to the discovery of petroleum. There is a peculiar necromancy about Professor Mercer's pen that gilds the most common-place subjects with a sun-like radiance.

We acknowledge our obligations to the author, Rev. Father A. G. Morice, O. M. I., of Stuart's Lake Mission, British Columbia, for a copy of his "Notes, Archaeological, Industrial and Sociological, on the Western Dénés," a volume of 222 pages with 200 illustrations, reprinted from the fourth volume of *Transactions of the Canadian Institute* at Toronto. Father Morice is a cultured scholar and highly educated Catholic priest who has given several years of his life, as missionary and teacher, to the work of ameliorating the spiritual and temporal condition of the Indians of the far Northwest; stationed at

present near Quesnelle, in the wilderness of Northern British Columbia, east of Queen Charlotte's sound. The Dénés are a numerous tribe of Indians of that region among whom Father Morice has long resided and labored; and whose language, arts, modes of living, history and traditions he has thoroughly learned. In these notes he gives the public an exhaustive and systematic account of this very interesting branch of the aboriginal American race, from their primitive use of stone and bone for implements, to their improved culture of the present day.

The Connecticut Quarterly, published at Hartford, is one of the few first-class magazines in our country devoted exclusively "to the literature, history and picturesque features" of its own state. It is emphatically a Connecticut production; well conducted, ably edited and finely illustrated; and treating of few subjects unconnected with the interests of that state. Among the leading articles in its April, May and June number is an admirable sketch of the great educator, Henry Barnard, LL. D., by Frederick Calvin Norton; The Tories of Connecticut, by James Shepard; The Last Shot in the Arctic, by Charlotte M. Holloway, and the Black Dog, a story by W. H. C. Pynchon.

The American Journal of Sociology. University of Chicago, May, 1898.

On its title page we are reminded that this journal "is not the 'organ' of any school of sociological opinion, but serves as a clearing house for the best sociological thought of all schools"; and right well is this declaration sustained throughout its one hundred and sixty-five pages. Though edited and conducted by Professors of the Chicago University, its advisory board of editors and writers comprise the deepest thinkers in all the principal universities and institutions of this country and Europe. In its pages the profoundest problems of social existence are treated from diverse points of view, always in the guiding light of truth and logic, and in the higher vein of sound philosophy. The Journal is issued bi-monthly at \$2.00 a year; single numbers 35 cents.

The School Science Review. W. W. Stockberger, Editor. Granville, Ohio, May, 1898.

This modest little pamphlet, of thirty pages, is a welcome visitor every month. "Devoted to Science for the Teachers in the Common Schools," it is always filled with entertaining matter, well adapted to all interested in science, who read it with profit, and consider it richly worth its subscription price of only 75 cents per annum.

NOTES.

It is certain that the Indians who worked the turquoise mines lately discovered in California, lived not far away from them. Dr. Eisen, the explorer who discovered these mines, asks: "Where did the Indians who worked these mines live? While it is not impossible and perhaps rather probable that they, as do their descendants, the present Mexican Indians, dwelt in huts made of rushes and Yucca palms, it may also be considered as certain that much of the population lived in caves. Such caves are now seen all along the 'malpai' ledges, and it is safe to say that they might be counted by the hundreds. We had merely time to examine a few of them. To explore them thoroughly must be left to the future, and there is every prospect that objects of great archaeological interest will be found in the caves, the floors of which are now covered by several feet of thin impalpable dust. The caves examined and photographed are from four to six feet high at the entrance, from which they slope downward and inward. Some possessed two or three openings or passages penetrating the interior of the cliff to unknown depth. They had all been so filled up with soft dust that further progress was prevented, but we could see that they at least extended from ten to twenty feet into the mountain, probably more. That they had once been inhabited is shown by the following facts: They were blackened by smoke, and were protected at the entrance by a wall of loose rocks. These rocks were nowhere in the shape of regular walls made of matched brick, but simply consisted of rough basalt stones piled one on top of the other without cement or mortar. Undoubtedly time and elements have combined to change the original shape of these walls, but enough was left to enable us to see that they were raised for purposes of protection against elements and enemies. As the present Indians do not dwell in caves, we must naturally consider that their original inhabitants were the workers of the turquoise mines, mining being the only industry by which a race could sustain itself on this inhospitable desert."

M. Loret, Director-General of the Egyptian Antiquities Department at Cairo, has discovered and opened the tomb of Amenophis II, a king of the eighteenth dynasty, who reigned about 1500 years B. C. I quote from the correspondent of the London Times, who writes:

"The find is among the most interesting ever made in Egypt, as, although the jewelry, etc., were rifled from the tomb probably during the twentieth dynasty, the mummies of Amenophis and of seven other kings are intact.

"The tomb is entered by a steep inclined gallery, which terminates in a well of some twenty-six feet in depth, and, this obstacle surmounted, the entrance to the king's sepulchre is reached.

"In the first chamber the body of a man is found bound on to a richly painted boat, his arms and feet tied with cords, a piece of cloth stuffed as a gag in his mouth, and marks of wounds on the breast and head. In the next chamber are laid out the bodies of a man, a woman, and a boy.

"None of the four bodies has been embalmed, but owing to the dryness of the atmosphere, are all in the most complete state of preservation, with the features perfect; although they evidently met with violent deaths, they have the appearance of being asleep. The hair upon each is luxuriant and the features resemble to a marked degree those of the fellaheen of the present day.

"The king's tomb is a chamber of magnificent proportions, in perfect preservation. The roof, which is supported by massive square columns, is painted a deep blue, studded with golden stars, and the walls are entirely covered with paintings, the colors of which are as vivid as if laid on only yesterday. At one end of this chamber, in an excavation sunken several feet below the level of the rest of the floor, is the sarcophagus of the king, placed upon a massive block of alabaster. The sarcophagus is of sandstone, artificially colored a bright rose hue, and contains the mummy intact, with chaplets of flowers around the feet and neck.

"In a small chamber to the right are nine mummies, two of them bearing no name, and the others those of the Kings Thothmes IV, Amenophis III, Set Nakht, Seti II (supposed to have been the Pharaoh of the Exodus), Rameses IV, Rameses VI, and Rameses VIII, who all reigned between about 1500 and 1150 B. C.

"The tomb is that of Amenophis II, for whom it was built, and is supposed to have been opened later to receive the mummies of the other kings, probably to save them from violation.

"The floors of all the chambers are covered with a mass of objects—statues, vases, wooden models of animals, boats, etc., requiring immense care in sorting for removal.

"The whole constitutes one of the most impressive sights that can be imagined. For the first time on record, the body of an Egyptian king has been found in the tomb prepared for him, as previously discovered royal mummies had been removed from their tombs and secreted for safety at Deir el Bahari.

"Possibly this discovery of the bodies of murdered victims in a King's tomb may throw some light upon the vexed question of human sacrifices which now divides Egyptologists.

"The Public Works Ministry has requested M. Loret to remove only the smaller objects, and to leave the mummies and bodies in their present place. The entrance to the tomb will then be built up until next winter, when iron railings may be placed to prevent injury from touching by visitors, while affording them the unique sight of the lying in state of a king who reigned over 3400 years ago."

The Royal Asiatic Society is about to publish an exceedingly interesting account of recent discoveries in India in connection with the early history of Buddhism, and especially of the great founder of that faith, Gautama Buddha. The authors are Vincent Smith, of the Indian civil service, and Dr. Vost, both leading Buddhist scholars. The chief discoveries are three—Guatama's actual birthplace, the home of his early years and certain relics which appear beyond doubt to have been his property. All three were found at different places not far apart in what is now the Nepaul terai, close to the borders of Oudh.

The discoveries were due to certain pillars of the famous Emperor Asoka, who lived about 250 B. C., or more than two centuries after Buddha. Asoka erected a pillar, the discovery of which established that this was the birthplace, or at any rate had been accepted as such in the earliest ages of the faith. The home of the great teacher was Kapilavastu, a small state of which his father was rajah. The place has long been sought after by scholars and here again the discovery in the jungle of another pillar of Asoka's pointed out the spot. The remains consist of brick tumuli. The relics were found just outside the British frontier, and consist of some fragments of bone in a wooden vessel which is supposed to have been the begging bowl of Gautama when he took up the life of poverty. The bowl and bones were in a massive vessel hollowed out of a huge block of sandstone which was buried under many feet of solid masonry. Beside the wooden bowl the sandstone receptacle contained a finely finished bowl of rock crystal. All these were filled with jewels of various kinds, deposited there in honor of the relics, and an inscrip-

tion written in characters of the age of Asoka states that the relics were those of Buddha himself.

Further, the writers believe they have discovered in the same neighborhood the site of the city of Eravasti, in which Gautama spent many years of his ministry. When the news of these discoveries has penetrated among the Buddhists of China, Japan, Corea and Cochin China it is sure to create much excitement, and this portion of Nepaul terai will be visited first by scholars and priests from these countries and then by Buddhist devotees, so that in time the place may become a sort of Buddhist Mecca.

Norman Draper, living near Wasco, Sherman county, Oregon, is the owner of a remarkable collection of Oregon curios, which he has been collecting during the past twenty years, and will exhibit them at the Omaha exposition.

The collection is now in Portland, and will be shipped East at once. It weighs in all seven tons, and consists of specimens of petrified woods, prehistoric relics, stone idols, implements of savage warfare, arrow-heads, etc. Most of the relics were secured from Indians, who brought them from the John Day country and other parts of Oregon. One curio in the collection is a petrified finger from the left hand of a woman. It is pure white, and perfect in every detail. It was found on the north fork of the Santiam river, but how many years it had lain there before discovery no one will ever know. A section of a petrified tree, twelve feet in length, and twenty-eight inches in diameter, is among the valued curiosities. It for centuries lay 250 feet under the lava of the sidehills of Emigrant canyon, near Wasco, and was washed out by a waterspout in 1884.

On the farm of Mr. Draper was fought that great battle between the Piute and Flathead Indians, which, through Indian tradition, took place about 200 years ago. The Putes were victorious, running the Flatheads to the Columbia river and on Memaloose island, where they were massacred. One interesting relic of this war in possession of Mr. Draper is the skull of a Flathead Indian, in which is lodged the point of a stone spear, with handle attached. The exhibit will certainly attract attention during the exposition at Omaha.

Mr. William S. Staley, of Santa Rosa, California, an untiring collector who has confined his search entirely to Sonoma county, has gathered together quite a fine archaeological cabinet. He has delved about the old rancherias in the Santa Rosa basin until he has so varied and strange a collection that he is constrained to wonder at it himself. There are rocks in the shape of implements, hewn in such fantastic lines that we can but surmise what the aborigines used them for. No one knows the object of their construction. If any one knew, that man would be Mr. Staley. Some of the rocks are round as croquet balls. Others are oblong, in the form of a carpenter's plummet. Aside from these there are pestles and mortars galore. All were dug by Mr. Staley from old creek beds and rancherias near the city. He has also gathered a quart or so of Indian arrow-heads and spear-heads made of obsidian.

Near Merced, California, while excavating on the county road for grading, Mr. W. T. Wisenor unearthed a large mortar weighing about fifty pounds four feet beneath the hard surface of the road. There were no signs of other rock in the vicinity and how it came there is a mystery. Many years ago Indians lived on the Los Banos creek, but that was at least four miles away.

The relics left of the prehistoric people who worked the turquoise mines in California consist of five different items, each one of which is of great interest, but which when taken together may well be said to form an open page of the history of a now vanished race which, when properly read and deciphered, will reveal to us the arts, life history and the semi-civilization of a race of which we until now have known almost nothing. These relics which now confront us are as follows: Exterior mines of precious turquoise stones of very high quality; series of highly complicated hieroglyphs, numbering tens of thousands and extending for twenty to thirty miles around the turquoise mines; hundreds of caves immediately below, or in the rocks in which the glyphs are cut, and in which caves there is every reason to believe that the mine workers of this ancient race dwelt while they were working the mines; numerous stone implements of the best workmanship, used in the working of the mines, and which implements are now found not only scattered over the surface of the ancient turquoise pits, but actually found in the mines, where they had been left by the miner, expecting to return and resume his work, when the war, to which perhaps he was suddenly called, would be over; pieces of pottery with impressed, not painted, ornaments.

There are also other traces of the ancient people in this vicinity, such as artificial trails leading to the water holes and openings, one of the trails being cut out in the hard, solid rock of the cliff.

Professor William Niven, who has before been noticed in "Notes" as the finder of many interesting Mexican antiquities, holds from the government of Mexico a valuable concession for exclusive archaeological research in that country. Last October he left the City of Mexico for the town of Xochipala, State of Guerrero. Part of his help came with him from the City of Mexico. The larger part of the party was, however, organized at Xochipala, consisting of ax-men, pack mules, etc. In the above state Professor Niven made a very interesting discovery in the form of a sealed cavern which is here told in his own words:

"We went to a hill, about one mile northeast of the village, covered with the foundations and walls of hundreds of prehistoric relics and ruins. None of these seemed to be of much importance, as they averaged about nine by twenty-four feet. They are built of stone of the kind that is found in that country, a kind of amygdaloid, and a hard cement had been used in the construction. In digging into one of the ruins close to a great rock sixty feet square which must have been dislodged from above I discovered the entrance to a cave filled with human remains in a remarkably fine state of preservation. One of the *mozos* struck his pick through the earth into the mouth of the cave. I then instructed that the opening be enlarged and sending back to the village for a lantern I crawled into the cave myself, as none of the *mozos* were willing to enter. In shoveling away the earth they had discovered a black scorpion and said they were afraid that there was a large nest inside of the cave. They were no doubt somewhat suspicious in addition, as they found that the mouth of the cave had been sealed hermetically with a species of cement, but whether natural or artificial we could not decide. There is no doubt that this accounted for the fine state of preservation in which we found the relics.

"I found the cave to be about thirty feet long, eight feet wide and only two and a half to three feet high. A most ghastly sight met my eyes. The floor of the cave was covered with a species of volcanic dust as fine as magnesia, and perfectly dry. Resting on this dust were about a dozen skulls and their eyeless sockets were fixed on the entrance of the cave, they having evidently been placed in that position, at some prehistoric time. It was a most grewsome sight and one long to be remembered. Some of the skulls were within a few inches of my face. Mingled with these remains of the dead I found a number of other articles such as potteryware. The fine impalpable dust got into my throat and choked me, so that during the three or four hours I was a voluntary prisoner in that cave lying on my side I was obliged to tie my handkerchief over my mouth so as to be able to breathe. I dug out all the relics and passed them to the *mozos* outside of the cave. There was also an abundance of pith-like wood and I selected several of the pieces. I failed to discover any metal whatever, either gold, silver or of baser metals. This would seem to indicate that these remains are of great age, probably much older than the coming of Cortez or of the records of the Aztec races, inasmuch as it is well known that at that time the native races had a knowledge of the working of copper and other metals."

Professor Niven had the bones discovered in this cave brought to Mexico and at his hotel unpacked the ghastly objects. The most curious feature about these bones is that no two skulls appear to belong to the same race of people. There is no ethnological similarity that would indicate that they belong to the same tribe or even to any of the later tribes known to exist in this country. One of the skulls in particular has such a curious conformation that it is dissimilar to the skulls of any known race anywhere. Both the frontal and occipital bones are flattened in so as to give the skull a pyramidal shape when viewed from profile. The two parietals on the contrary bulge out and form a noble arch up to the bump of veneration. The rest of the skulls show a more than average intellectual development, and the general formation would seem to indicate the square head Teutonic type.

Another peculiarity about these bones are the teeth. Some of the skulls although evidently belonging to adults, contained only twenty-eight, and others only thirty teeth, all told. Of course this means counting the remaining teeth and sockets where the teeth were originally. Very few of the skulls had bicuspid, the molars in some instances reaching entirely around to the front incisors.

Near Zumpango del Rio on a barranca which lies right across a *canada* from the town of Zumpango del Rio three leagues north of Chilpancingo, Professor Niven discovered a clay bank with a vein of bones several feet below surface. Mixed with these bones were different articles of household use and personal adornment. From the position of the remains and other circumstances including the geographical location of same, it would appear that a large number of people were here overtaken by some flood or earthquake and perished.

Professor Niven will leave for New York, but intends to return to this country, bringing his wife and family and will make his future residence in Mexico.

The American excavations on the site of ancient Corinth were resumed by Director Richardson on March 23. The work will be pushed this year with unusual vigor, in the hope of making up for the enforced suspension of the excavations during the war excitement of last spring. As a large amount of earth has to be removed in order to uncover the agora, which is, at the point where the work is now beginning, about fifteen feet deep, a portion of the track, some 1500 feet, which was used by the French in the excavations at Delphi, has been purchased, as well as twelve dump-cars, and the slow processes of conveying dirt in baskets on the shoulders of men will be replaced by more wholesale methods. The work started with eighty men and various mules.

The excavations of a year before last were largely tentative in their character, but resulted in the discovery of the theater, a brilliantly fortunate success in itself, inasmuch as it served to locate the general topography, and guide with certainty to at least the neighborhood of the agora. One of the trial trenches which was dug in the hope of finding the agora came upon a broad, finely paved street, running between what were evidently important public buildings; but little has been done beyond this. It remains for the work of this year, which will be conducted in the region of this trench, to lay bare the street and its buildings.

Sufficient land has been expropriated by the government and placed at the disposal of the American school to occupy the excavators for the present year. The funds left over from what was collected in 1896 and 1897 are sufficient to buy the track and cars, and to make a beginning of this year's work. Fifteen hundred dollars more, however, is needed. The treasurer of the school, Gardiner M. Lane, No. 44 State street, Boston, will receive contributions for the purpose.

The new Austrian institute, under the direction of Dr. Adolph Wilhelm, has just begun exploration and excavation on the site of the Artemis temple of Lusol in the Northern Peloponnesus. Mr. Hogarth, the new director of the English school, is prospecting with a view to beginning excavations in Crete.

Mr. Charles Harland writes in a very learned manner in the "Call" of San Francisco, on Petroglyphs, part of which I quote below:

"Man takes his written histories and goes back a few thousand years into the past, and there he finds that his race was perfect in its development, even as it is today. What transpired before the historical period has come down in fragmentary legends about occurrences during a few centuries previous and then we find that the rocks bear records of deeds done so long ago that even the memory of tradition does not account for the vanished race. The everlasting rocks bear the story on from generation to generation and from the age to age until every meaning is almost obliterated by the changed conditions and environments.

"These stone records are to be found in all parts of the world, but nowhere in such profusion as in the United States. From Maine to Alaska and from Florida to Southern California, they are found, constantly telling of the progress of man. Some are so ancient that no man has even a legend to account for them, while others may have been the product of yesterday's labor.

"There is no portion of the entire North American continent in which petroglyphs are not to be found. Is there a huge boulder, water worn and smooth—there is found some engraved figure showing that man has utilized it for a recording place; do canyon walls rise high and sheer, presenting a suitable tablet for inscription—there are found etchings made with implements of obsidian and chert, showing that man has taken this as a page on which to write a portion of the world's history; on cliffs, on ledges, wherever smooth surfaces are to be found, some inscription, some writing, some hieroglyphic notation of the presence of an intelligent being who had the aspiration to be known to future generations, is indelibly marked.

"Either etched with sharp and flinty tool, pecked with pointed chert or obsidian silver, engraved with heavier implement of agate or painted with colors furnished from nature's great storehouses, they are to be seen everywhere as the first effort of primitive man to make a record of the events in his life that he considered of sufficient importance to be handed down to his descendants.

"The concerted effort to decipher these rock writings that is now going on from the Atlantic to the Pacific may result in bringing to light those secrets which have been supposed to be hurled in the mounds that dot the country across the continent, and one day we may know the history of that mysterious people who left so many evidences of their residence behind without giving a clue to their personality.

A. F. B.

THE AMERICAN ARCHAEOLOGIST.

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THE PREHISTORIC RUINS OF THE RIO TULAROSA.*

In the western part of Socorro county, New Mexico, in the valleys of the Rio San Francisco and its tributary, the Rio Tularosa, and in high basins scattered through the mountains lying on both sides of these streams, are found many remarkable groups of prehistoric ruins. The most striking and interesting of these old stone dwellings lie along the upper course of the Rio Tularosa, where they are found in great numbers, from its source on the western slope of the continental divide to a point sixteen miles below, where the valley narrows to a mere rocky gorge or box cañon, guarded on either side by lofty cliffs. Below the box are very few ruins, not more than half a dozen in all, and these small and unimportant.

The valley of the Rio Tularosa is limited in extent, being in no place more than half a mile in width, but the soil, which is deep, rich alluvium, is of amazing fertility and productiveness. Native corn does well, and all small grains and vegetables make enormous crops. Great springs well from the ground at the source of the stream, and its clear, pellucid waters are sufficient for the irrigation of the cultivable land along its course. During the season when the crops are making, enough rain usually falls to obviate the necessity of irrigation; thus, while high and rather cool, it is an excellent farming country, and doubtlessly yielded more than was necessary for the support of its prehistoric population, which, judging by their thickly strewn remains, were quite numerous.

From the head of the river to the box cañon I counted seventy-eight ruins on its southern bank and sixty-nine on the northern. There is also one small cliff dwelling in a sandstone bluff one mile from the head of the stream, with four of five rooms still showing. These houses, which were built of stone set in adobe mortar, varied in size from the single room, one-story building, to structures three or four stories high and containing from one hundred to two hundred rooms. It is not likely that they were all occupied simultaneously, nor is it probable that the population was ever so great as the number of buildings might lead one to suppose. The small houses, which are the oldest, being in many cases almost obliterated—doubtlessly many are entirely so—were, presumably, the first ones occupied, but the continued harassing of the roaming Indians, who inhabited the country to the north and northwest of them, finally drove the people to the communal house or pueblo. This restricted individual liberty, but insured greater security, as in these thick-walled stone houses they were comparatively safe from their light-armed enemies. Great care was exercised in the selection of the building site, the top of a little promontory jutting out from the base of the slope being most in favor, and as these are quite common, it is on

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such points that many of the ruins are found. Others are built on little elevated flats, but always out of the reach of high water, and, where possible, in a defensible position. Sometimes houses were built on a second terrace, but nearly all of them are found on the first. From those terraces a long, gentle, grassy slope, clothed above with a growth of cedar, piñon and juniper, extends back up to the higher and more rugged portions of the mountains.

This valley is the most favorable of all the pueblo locations I have seen west of the Rio Grande. Many of the ruins found elsewhere are situated on lofty and rocky mesas, with scant water supply, and with but little timber either for building or fuel within many miles, the inhabitants depending on the uncertain rains, to grow their crops, and with bare and inhospitable plains, or rugged and savage mountains surrounding them, their one recompense being a degree of safety from their marauding and murderous neighbors.

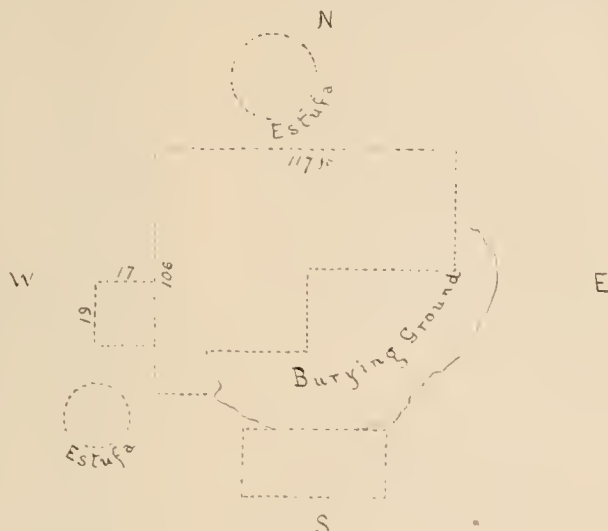
Here was everything that the primitive man could wish; a climate permitting outdoor life nearly the whole year round; scenery the most charming, and almost perpetual sunshine; a deep blue sky and a pure, thin air that braces one like wine; a fine soil for the cultivation of his simple crops, plenty of good water, fuel at his very door, the hills and mountains swarming with game, and nearly all the material at hand for the practice of his narrow and restricted arts. Here, in the bygone centuries he lived his little round of life—how many ages ago no man can tell—most likely dead and buried and forgotten centuries before the coming of the first white man; for when Coronado passed through from Arizona to the valley of the Rio Grande, traveling to the east by a route only a few miles north of the Tularosa, no faintest whisper reached him of these people of the great rock houses. Not only prehistoric, but, so far as present information goes, pre-traditional, for the Navajos and Apaches, when questioned in regard to them, know nothing.

The extreme age of the ruins is shown by their present condition, even the largest of them being no more than great heaps of stones and earth. In some, gigantic trees are standing, which are evidently the growth of centuries. It must be remembered also that these remains differ from numerous great ruins elsewhere, many of which were built, in great part, of adobe, and that no adobe walls are found here; that all is solid masonry, and that the workmanship displayed is of a high class.

At Delger's ranch, which is situated just above the point where the cañon boxes, are three ruins, two of which are especially remarkable for their size and structure, and for the great amount of pottery and other relics which have been dug from them. As these are typical ruins, a description of them will probably give a better idea of what may be found in this valley than would a more general account of all. Immediately above the box the valley is bounded on the east by a high, rock-rimmed mesa, the foot of which approaches to within two hundred feet of the stream, even in the widest part. On the western side is a fine bottom, containing some forty or fifty acres of farming land. From this the country slopes gradually up for about half a mile, where it opens out into a great wooded valley. A wide, low ridge extends up the middle of this slope toward the north. At the southern end of this ridge is situated what I shall designate as the lower ruin; two hundred yards farther up is the middle ruin, and an equal distance farther, the upper ruin. It appears that the whole was at one time covered with buildings, as one finds stone walls in almost any part of it by digging down from two to four feet. The Delger house, which is situated a short distance from the lower ruin, is built upon the site of another; no evidence of it shows on the surface, however. Once when constructing the foundation of a porch, Mr. Delger took out human bones and several pieces of pottery.

The lower ruin is small, never having contained more than thirty or forty rooms, and is important chiefly because of the great number of relics taken from it. All of the houses were built of flat stones, which were laid in adobe mortar. These stones vary from the size of a man's hand to a foot or more across. The parts of the walls which have been uncovered are plumb, and the rooms are perfect rectangles. The outer walls are sixteen inches thick. A detached portion containing six rooms, which may be seen in the plan, lies a few feet south of it. It had two estufas.

The middle ruin is the largest; a part of it has been three or four stories high, and it contained from one hundred and fifty to two hundred rooms. The rooms have been plastered on the inside with adobe mortar, which may be seen, perfectly smooth and intact in many places, where the walls have been exposed by digging. The top of the mass is still more than 20 feet above the level of the surrounding country. In the center of the ruin a



LOWER RUIN: GREATEST LENGTH, 117 FEET; GREATEST WIDTH, 106 FEET. TWO ESTUFAS. ABOUT 20 ROOMS IN SIGHT

shaft was sunk to the depth of twenty feet without reaching the bottom of the walls. This ruin has one rectangular and four circular estufas still showing. These estufas, or kivas, as the Indians call them, were walled underground chambers. The oldest and more ordinary rectangular estufas are found in the valley of the Tularosa. Mrs. Delger once cleaned one out; it was nine feet deep, and had been walled with stone and plastered. A low bench of mud and stone ran around the chamber at the base of the wall. When in use the open top was probably covered, as were the roofs of the houses, with timbers, small poles, bark and earth. There was a trap-door or opening in the roof, the interior being reached by means of a ladder. In these places the religious ceremonies of the tribe were conducted and councils held.

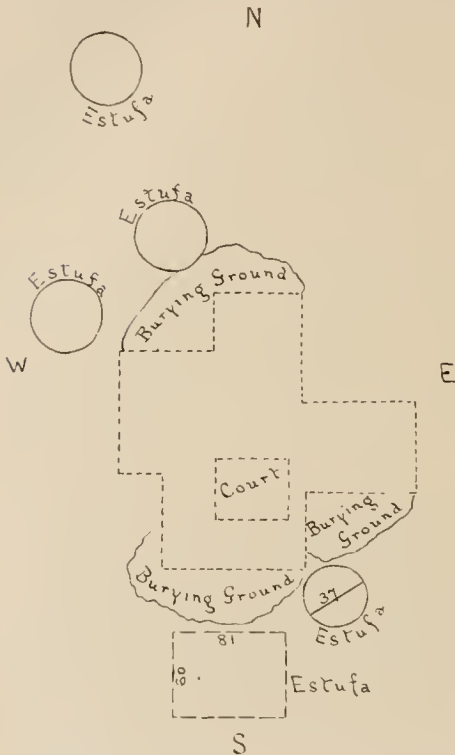
The upper ruin is in such condition—so tossed and tumbled—that but little can be determined in regard to its structure, although a portion of it was two stories high. The circular depression of four estufas can still be seen. The rooms of these old castles varied greatly in size: some measured were nine feet by six and another was eighteen by twenty. There were no chimneys; the fire-places, made of rudely dressed flat stones, are usually in the center of the room or in a corner. The smoke escaped as best it might, probably through the hole in the ceiling, which served as a doorway when another room was not located above, or maybe through the small holes in the walls which are occasionally discovered. There are many doors in the walls between rooms, and a very few outside openings.

The doorways I measured were from fourteen to sixteen inches wide, and from three and a half to four feet high. One peculiarity about these dwellings is that in all cases the doorways are walled up. Mrs. Delger tells me that in the course of her work in the ruins during the past fifteen years she has cleaned out

dozens of rooms with doorways in them, but that they have been walled up without exception. This may have been done when the houses were deserted. Narrow walled passages are numerous in all the ruins.

One gains some idea of the enormous number of relics that have been excavated when it is known that over two thousand pieces of pottery have been dug from the ruins that crown the ridge. The pottery is found in the graves with

the dead: many of these graves are under the floors of the rooms; in fact, the greater portion has been so buried. The rest of it was taken from graves outside the walls. Taking in consideration the fact that about one-half of the pieces unearthed were broken, it will be seen that the number of pieces of pottery buried in the vicinity was very great, and there is still more unexplored ground that has already been examined. It would appear that, in general, when a body, or maybe several of them, were buried in a room, fresh earth was carried in and spread upon the floor to the depth of a foot or more; this was stamped hard and a coating of mortar spread over it, after which the room was occupied as before. This was not always done, however, as sometimes one or two burials have been made and the surface of the grave merely muddled over. In some rooms successive burials were made until the apartment no longer served as a dwelling place, and was sealed up. Three and even four layers of skeletons have been discovered in some of them. After having become uninhabitable, the remaining space was possibly filled in with earth. In the upper rooms the body was laid in a corner, and walled and muddled up; it is probable that a layer of earth was sometimes



MIDDLE RUIN: GREATEST LENGTH, N. TO S., 231 FEET
GREATEST WIDTH, E. TO W., 184 FEET. THE PLAN
OF THIS RUIN IS TOO SMALL, CONSIDERING
THE SIZE OF THE ESTUFAS.

spread over the floors in these also. Sometimes twelve or fifteen pieces of pottery, or even more, are grouped about a single skeleton, but the general average of whole pieces is not more than three or four. The pieces have been placed in the graves about the body, usually about the head. Frequently several bowls will be found, one over the other; one will be in proper position; over this a larger inverted bowl, while above is another still larger, and so on. The bowls with the openings up often have something in them, sometimes a coarse black substance, which was no doubt meal; in others there will be beads and different little trinkets, such as bracelets, shell ornaments, turquoise and cut stone charms. Where but one burial was made in a room, the grave is generally in the southeast corner. The burial places are generally in the southern or the eastern side, although this is not always the case. Many rooms have been dug into which contained from nine to fifteen skeletons; from one, twenty-three skeletons were exhumed, and more than a hundred pieces of pottery taken. Some of the bodies buried in the rooms had been wrapped in rude mats, woven of tules, a sort of coarse flag which

grows in the valley. These were so decayed, however, that they crumbled to dust when exposed to the air. The skeletons in the outside burial places usually lie from two to four feet below the surface. The bodies were all buried with the head toward the east, the lower limbs drawn up and the knees elevated. Judging from their skeletons, they were men of average height and good physique, strong limbed and heavy jawed. Most of the craniums are of good shape. Of all the ruins on the Rio Tularosa, these are the richest and most productive. Nowhere else has been taken out such well-shaped and beautifully decorated pottery, or so many of those little trinkets which went to make up the wealth of the prehistoric man.

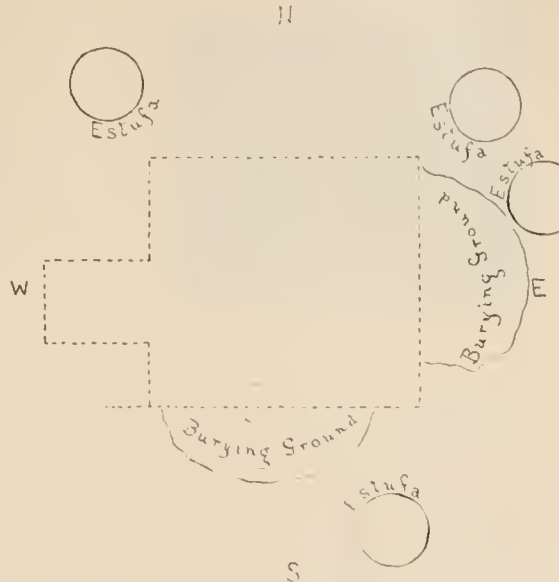
Their respect and reverence for their dead is shown in the fact that they buried them in their living rooms, and placed in their graves, when they started them on their long journey, so much that to them seemed very precious. The many hundreds of skeletons testify to their long occupancy of this site, for it is not likely that the population was ever great.

There are five principal kinds of pottery: the black and white decorated ware; that with the black and red decorations, which is very rare; the corrugated kind; the smooth bowls with black lining, and a plain red variety. It is of excellent make and quality, and the decorations are well preserved. I have seen perfect pieces no bigger than a thimble, while some of the larger ones have a capacity of eight or ten gallons; those of this size are usually broken, however. The illustration will give a better idea of the pottery than could any amount of description.

The corrugated ware is supposed to be the oldest; nearly all pieces of this class are black and worn with use and age. The ware with black and red decorations, which is much sought after, is very soft when first uncovered, and most of it is broken in taking it out. Much of the pottery taken from these ruins is now in the collection of Mr. Henry Hales, of Ridgewood, New Jersey.

The principal stone relics are the metates, or grinding stones, used in grinding corn; mortars and pestles, arrow-heads, stone axes and mauls, dressed flat stones for making fire-places and a very few stone images; of these not more than two or three have been discovered—one of them represented the head of a bear, and another the rude image of a man. There are bone punches and awls in abundance, and also a few bone images.

Commerce was carried on to a certain extent with other tribes; there are many sea shells and a few ornaments of kinds of stone unknown in New Mexico. But three pieces of metal have been excavated—two small copper punches and a rude, round copper bell. These are, I believe, the only metal relics which have been taken from the ruins in this valley.



UPPER RUIN: GREATEST LENGTH, N. TO S., 162 FEET; GREATEST WIDTH, E. TO W., 153 FEET. IMPOSSIBLE TO DETERMINE NUMBER OF ROOMS.

These primitive men were evidently peaceful, as they had but few weapons; the arrow-heads picked up are generally small and insufficient. They must, however, have had considerable skill in hunting, for bones of the turkey, deer and bear, as well as those of other animals, are scattered thickly in the debris of the ruins. All of the larger bones have been cracked, presumably to get at the marrow.



POTTERY AND PREHISTORIC LAMP, FROM DELGER'S.

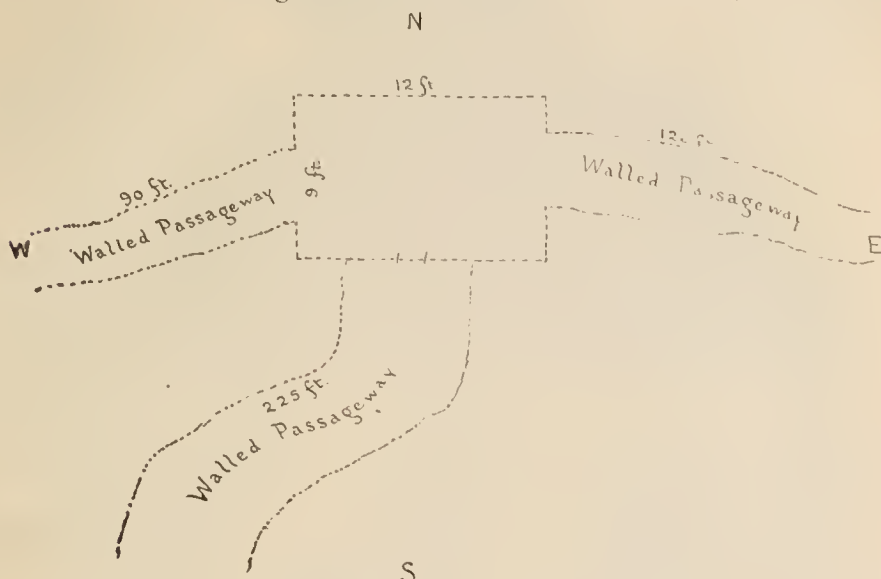
They no doubt depended more on their strong rock houses for defense than they did on actual fighting, although from their heavy, determined-looking jaw bones, I would venture to say that they were no mean antagonists in a pinch. Half a mile below Delger's, on the north side of the Tularosa, a lofty, flat-topped peak, or mesa, towers one thousand feet into the air. The upper part of the mesa is of solid rock, and the last forty or fifty feet is perpendicular. The top can be reached only by two narrow paths, and these so rugged and steep that one is compelled to use both hands in drawing himself up over the huge boulders and among the sharp crags. The passageway on the northern side is almost a natural stairway, which at some far distant time has been artificially improved, but even as it is, it is so narrow and precipitous that half a dozen determined defenders could hold a hundred foes in check by rolling down rocks on them; of these a great heap lies on either side of the stairway at the top. The naturally strong position of the mesa has been strengthened by a rough wall of rock three feet high around the edge. Three circular walled places are also grouped near the center of the table-top, which is six hundred and fifty feet long, and seventy feet in width at the widest part. Many pieces of broken pottery are scattered over its surface. This was doubtless designed as a last place of refuge, should the people be attacked and driven from their houses. Whether or not they were ever forced to this sore necessity, is impossible to determine.

No traces of irrigating ditches have been discovered by the early settlers in the valley, but that the builders were an agricultural people is amply proved by remains found in their dwellings. Corn-cobs, blackened corn, beans and the seeds and stems of pumpkins, or squashes, are abundant. We may, therefore, conclude that they were agriculturists and hunters, living upon the products of their fields and the chase.

What caused them to leave their homes will probably never be known; whether weakened and discouraged by disease, they abandoned their dwellings, or whether they left in a body from some unknown cause, is an insoluble problem. It is not likely that the abandonment was the result of war, unless it may have been brought on by long-continued harassing by enemies. Had it been the result of one fell raid, skeletons would certainly be found scattered promiscuously through the ruins, but such is not the case. With very few exceptions they have all been laid away with the usual rites. Deep in the ruins partially burnt timbers are frequently unearthed, showing that fire had been one of the agents in their destruction, but this may have been done by wandering Indians after the buildings were deserted. The result of the only overt attempt to bequeath an unlettered history to posterity is found on the faces of the high cliffs in the cañon below Delger's, where have been carved, or picked, numerous pictures and characters upon the hard, smooth walls. These cuttings are about one-half inch

deep, and are, in many cases, exceedingly well executed, and must have required, with such insufficient tools as these old workmen possessed, an immense amount of time and labor.

Nothing that would suggest its use as an idol—unless it might be the bear's head, has been taken from these ruins, although fifteen miles below, I dug from the dust and debris covering the bottom of a cave in the mountains, on the western



PLAN OF STONE STRUCTURE ON APACHE MOUNTAIN.

side of the Rio San Francisco, two carved wood figures which had evidently been used for this purpose. One represented the head of a man, carved on the end of a small piece of timber, and the other was a rude representation of a bird—probably a dove. At the foot of the mountain, below the cave, was a great stone ruin.

About six miles from Delger's, on the very top of the highest peak of the Apache mountains, overlooking these ruins, and, in fact, nearly the whole course of the upper Rio Tularosa, I discovered the remains of a very interesting stone structure. On the highest point, among the little pines which crowned the summit, was a small room twelve feet long by nine feet wide, built of flat stones which had been brought from some place on the lower slopes. From this room three narrow passageways extended to the east, north and south. These walled passageways average five feet in width. Thousands of pieces of broken pottery were lying on the ground outside the walls. Near these remains we came upon two smaller structures of the same kind. If designed for use as lookouts, they were certainly admirably located; for, from these high points—fully nine thousand feet in elevation—the whole country, for miles and miles, lies before one like a map.

To what tribe the people of this valley belonged is uncertain, but they were no doubt closely related to the modern Pueblo Indians.

One comes away from this "graveyard of the past," with its grassy-shouldered hills, its dim and hazy sierras and sighing pines, with many vain regrets. And all these things call hourly upon him, with voices that will not be stilled, to return once more to their mysterious presences.

San Marcial, N. M.

U. FRANCIS DUFF



PREHISTORIC REMAINS OF THE TUNXIS VALLEY. (Second Part)

BY FREDERICK H. WILLIAMS, M. D.

"The devices of primitive man are the forms out of which all subsequent expedients arise. The whole earth is full of monuments of nameless inventors."—Mason.*

The general similarity of the culture existing among the Tunxis Indians to that of the natives of other sections of North America, as shown by their remaining implements, points to their common origin. Yet the dissimilarity of speech and the extent to which special forms of art and customs had differentiated in different sections, point also to a very ancient origin of man in America. In judging the advance and skill of any people by their artefacts, we must consider their surroundings, their food supply, and especially those materials upon which their skill might be expended. The comparative ease with which the more tractable materials could be obtained must ever have had as large an effect upon the expansion of special arts as the pressure of that necessity, called the "mother of invention."

Yet a comparison of such worked objects as we possess shows the Tunxis† Indian to have been capable of work equal to most any people of America—unless it be claimed, which we shall not consider, that his better objects were the result of barter. The Indians of this section are believed to have always been few in number; for, except he attach himself to some food supply that is either by nature or through his own efforts made regular and unfailing, man never multiplies rapidly nor emerges from a savage state. All the great Oriental civilizations grew up around the wheat, barley, rice or date fields, or in the pastures of domesticated animals. So in America the nuclei of budding civilizations were found amid the maize or cocoa fields, or attached to the buffalo or the llama. Elsewhere existed only different degrees of a baser savage-

* Origin of Inventions, p. 413.

† We know nothing of prehistoric migrations of tribes. Those Indians whose relics we are discussing may have been of a hundred successive nations.

Of the Connecticut Indians we are told, "The women of an ordinary family cultivated and harvested two or three heaps of maize in a season of from fifteen to twenty bushels each," and also raised beans, pumpkins and tobacco.* In their agricultural labors we are told that they used largely their fingers as



AGRICULTURAL TOOLS

tools. "The only other implements which the Indians seemed to have used were spades rudely constructed of wood, or a large shell fastened to a wooden handle."† As it must have been easier for the Indian to have made a stone spade than one of wood, such a conclusion seems hardly tenable.

Our early settlers were more interested in converting the Indian, when not killing him, than in studying his physical surroundings, to which we must owe the poverty of their descriptions.

It is only the span of three generations since the learned men of Europe considered their prehistoric relics to be either the weapons of fairies or the thunderbolts of the god of lightning.

* DeForest, *Indians of Connecticut*, p. 5, quoting Roger Williams' key.

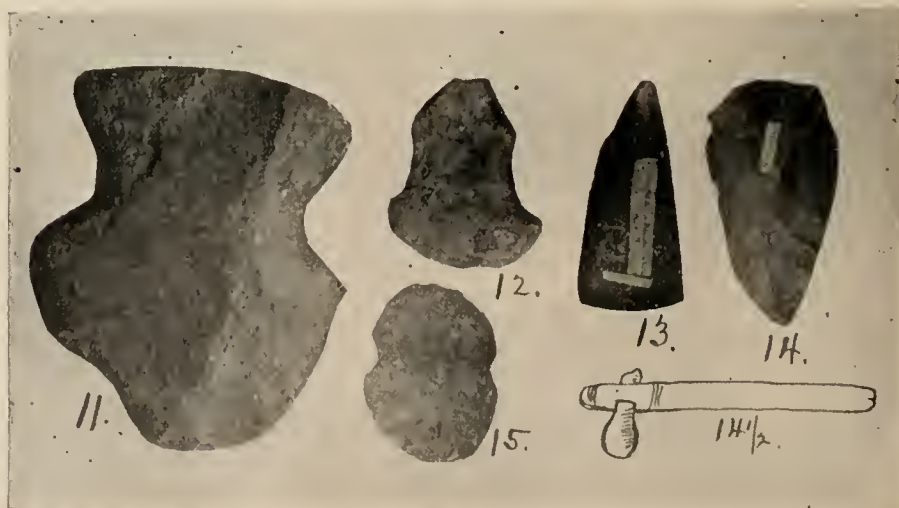
† *Ibid.*

While the ungrooved celt was a universal tool, curiously enough the grooved tool, excepting a few hammer forms, seems to have been mostly confined to America. The prehistoric dwellers of the Tunxis Valley left us many



GROOVED AXES.

grooved implements, ranging from the rudely notched picks of the steatite miners, through more or less perfect axe-like forms, to little hatchets or tomahawks. These are mostly classed as axes, but from many years' study of the ruder forms the writer cannot consider them either rejects or unfinished axes, ism, and even that a largely degenerate and apparently a disappearing people.



TOMAHAWKS.

but believes many of them were used as earth picks and hoes in cultivating maize. The agricultural tools are more rudely made than celts, often merely coarsely flaked into shape. Showing no signs of hammer pecking, their only

polish is that of use, and this shows chiefly on the bit and in the groove. When we examine such a tool it will be seen that a line drawn from the center of the head to the center of the blade shows the blade curving away to one side. Fig.



2 (Farmington.) No one could direct a straight blow with such a tool used axe fashion.

Fig 3 (Plainville) gives us a side view of this form of tool which shows the point contended. Various leaf-shaped tools seem to belong in the section of digging implements. Fig. 4, from Windsor meadow, shows a fine and ancient example. Chipped spades of quartzite, somewhat resembling

those from Illinois, only much ruder and smaller, have been found at Congamond Lake. They show a fine polish from use. Figs. 5, 5(2).

The real grooved axe was built upon a straighter line than the hoe. Usually pecked into a more perfect shape, it was often laboriously polished all over. The nomadic nature of our aborigines and the vast forests full of partly decayed timbers must have rendered a great number of these tools unnecessary, yet we find some fine examples. Fig. 6c illustrates one from Southington. Fig. 7 is an unusual specimen from Farmington. Ornamented with a ridge around both sides of the groove, it was once polished all over, but has been roughened anew by the unrelenting fingers of time. Fig. 8 shows a fine flat axe from Plainville. We also illustrate another example in Fig. 9.

We may here speak of the tomahawk, which doubtless served to break up wood and bones on the march as well as for purposes of war. Some of these are very axe-like, as the specimen, fig. 11c from Southington. Fig. 12 shows a very rare tool, a chipped quartzite hatchet from Farmington. Fig. 13 shows a beautiful object of the celt type, from Burlington, which we consider a typical

tomahawk. In fig. 14, from Farmington, we have a third type which must have been used exclusively for war or chase. We believe this to have been much the more common form. We read of the torture of captives by the Indians, who were said to have tied the victims to a tree and thrown tomahawks with such skill that they remained attached to the tree around the captive's head. The futility of such a use of the prehistoric tomahawks needs no comment. The curious reader can find in Vol. 2, p. 16, of Winsor's "Narrative and Critical History of America," a Caribbean form of tomahawk, showing how they were helved, as given by Oviedo in his book, edition of 1547; fig. 14 $\frac{1}{2}$. In this section we must include certain grooved stones found in Farmington and Southington, fig. 15c. These stones were doubtless firmly fastened to a slightly elastic handle by a strap of rawhide and used as war clubs. We cannot agree with those who style them hammers.

GOUGES AND ADZES.

Closely connected with the celt and axe and having the same dual development, grooved and ungrooved types, are the gouge and adze. They are among the most remarkable of ancient tools. Made of very hard stones they are



GOUGE-ADZES.

always finely polished, and the cutting edge is always nearly perfectly symmetrical. They all agree in having one face flat and the other more or less acutely rounded. The gouges are hollowed out more or less deeply on the flat face and brought to a sharp curvilinear blade; some representing nearly a half circle, while others are more expanded, a few being nearly flat.

Examples: From Farmington, fig. 16; Granby, fig. 17; Plainville, 18, and Bristol, 18a, are shown. Fig. 19 shows a chipped quartzite gouge from Congamond lake, which recalls the paleolithic implements of Sweden.* It is the general opinion that gouges were used in making canoes. The adze differs from the gouge in being made for a helve. It is usually less deeply hollowed, has a more curved back, with a flatter face. The arrangement for helving is often exceedingly ingenious, especially when we consider that it must have been planned before the stone was worked down to its final shape. Some are

* In the writer's cabinet are two similar tools from Sweden.

merely flat-like forms with the blade brought to an edge even with the lower surface and only slightly curved to the sides. Fig. 20 shows a rare style from Granby, three inches long. Fig. 21 represents a typical form of adze, with a curved back and two ridges forming a raised groove for helving.

THE GOUGE-ADZE.

This implement combines the features of gouge and adze and is more common than the flat forms. The cutting edge varies the same as gauges and the raised back is sometimes grooved, and at others has carefully made ridges for attaching the helve, often so arranged as to protect the withe or strap used in seizing on the handle from the friction of use. Figs. 22, 23^r, 24, 25 illustrate the several forms.

In fig. 23 the mode of attachment is a small nipple-shaped protuberance. Fig. 26^r, from Plainville, is a very peculiar form, only 2½ inches long. It is exceedingly well made and deeply gouged on its face; upon its back is one very sharply made ridge. This tool must have had a small handle, probably of bone, and been driven chisel-fashion by a mallet. The illustrations show the several forms. This whole series of implements is of the highest interest but lack of space forbids further individual descriptions. This form of implement seems to have had a fuller development in New England than to the South or West.

THE PLUMMET OR SINKERS.

Stones shaped like various styles of plummets are found all over the United States. Very elaborate forms in soapstone have been taken from the Florida mounds. The writer has collected them made from the central column of great sea shells (*Busycon*) on the shell mounds around Tampa. They were probably used as ornaments, although their use is a disputed point among many archaeologists. We illustrate two local examples, fig. 27, Farmington; fig. 28, Plainville.

(A late writer in the *Antiquarian* contends that they were weapons to use as slings. We should enjoy seeing him using some of the plummets of shell, pottery and soapstone from the South.)

ORNAMENTAL AND CEREMONIAL OBJECTS.

That the ancient red man was not insensible to the seductions of pleasing shapes and colors is easily shown when we study their vestiges. Arrow points are found which today are valued for jewelry. No one can look over a good collection of these points without a feeling of wonder not only at the great variety of shapes and materials, but also at the skill with which the beauties of the stone are made manifest. In all manner of implements we find uncommon and curiously marked stones, laboriously worked into shape. Upon the pottery we have already shown the love of ornamentation. The love for color expended itself also upon mats and basketry, of which we possess no prehis-

toric examples from this valley. Tanned skins and bark were dyed and painted. Teeth and claws of animals were made into necklaces. Bones and shells were largely made into beads both for use as ornaments and for money. But we know only of a few long beads from a grave in Farmington. These long beads are considered as of greater antiquity than the wampum forms.† The Indian was also lavish in the use of paints upon his own person. We are able to illustrate two small paint cups, one of which was dug up by Mr. Jacob Mesrolo, of Southington, near Wonx spring, and when found was partly filled with red paint powder, fig. 27*a*, and fig. 28*a*, also from Southington. Lumps of red and yellow paints are not uncommon in Florida shell mounds. Aside from this use of paint and beads upon himself and his trappings, the subject of ornaments appears to have been closely allied to religious and ceremonial observances. The Indian made various ornamental objects of stone, bone and shells. The stones were mostly beautifully grained slates or crystalline forms. The use for which the varied objects were intended is yet buried in the oblivion that overwhelmed their makers. They no doubt filled a place in his imagination and helped to satisfy a craving, which, if it were not a love of art and beauty, was at least its embryonic form. They also doubtless had a further reason for being, some probably may have been the badges of official or priestly rank, and used as ceremonial accessories, while others may have simply ministered to the pride of their possessors, as mankind today takes pride in possessing painting and sculpture. Whatever may have been their use, they are found all over the United States east of the Rocky Mountains, more or less sparsely in New England, and becoming more numerous and varied in shape as we approach the ancient centers of denser populations. Uncommon forms have more restricted areas, and there is quite a perceptible difference in special arts among the Southern Indians, where certain forms unknown to New England are found. Various names are given to these objects, according to the imagination of the describer. Curiously enough the older authorities in ethnology, such as Schoolcraft, seem to be the poorest. Comparative study has proven more valuable than tradition.

GORGETS AND PENDANTS.

Flat objects with two perforations whose opposite faces are always beautifully polished and which are usually symmetrical, that is if cut into two equal parts each would be the counterpart of the other, are called gorgets. Fig. 29 shows a beautiful specimen in green banded slate from Plainville. Similar objects with only one perforation, more usually near one end, are called pendants. Fig. 30 gives one of an unknown lightish colored material from Granby, and fig. 31 one from Southington of black slate. Broken and decayed fragments of gorgets are frequently found on village sites.

† Although these beads came from a grave in Farmington, the writer is not satisfied of their being prehistoric. He would be pleased to hear of any others from this section of the state.

ARCHAEOLOGY IN NEW YORK.

The State of New York is to be congratulated on securing so efficient a man as Mr. A. G. Richmond as the honorary curator of the Archaeological Department of the State Museum. He has the active interest and support of Mr. Dewey, of the State Library, and of others. Sixty of the curious wooden masks of the Iroquois are in place, a fine assortment of stone and clay pipes, some remarkable pottery, many unique articles of bone and horn, and good examples of all the common types. Several local collections have been secured with no extravagant outlay, comprising much both early and recent. The circumstances under which many New York relics are found throw much light on the actual, or comparative, age of similar articles elsewhere, giving them a double value.

Two of the large, grooved boulders from Onondaga county have been placed near the cases in the State Capitol. They weigh nearly half a ton each, and the straight grooves in them are supposed to have been used in making arrow shafts. Bone fish-hooks, barbed and without barbs, are among these New York relics, and many other curious articles in shell and bone. When these are illustrated there will be some revision of too-common opinions. The masks were collected by Mrs. Harriet Maxwell Converse, as well as the fine assortment of silver ornaments, including Iroquois bracelets, brooches, head-bands and ear-rings.

One of the most notable acts of Mr. Richmond was the appointment, at his suggestion, of the Regents of the University as wampum keepers of the Six Nations, by the Onondaga chiefs. It has long been feared by Indians and intelligent white men that these belts would soon be utterly lost, as the larger part have been. This appointment stopped an evil which it could not altogether remedy. Under its provisions I was able to secure the two widest wampum belts on record, one being forty-five and the other fifty rows wide. It was none too soon. In the short interval since I had seen them last the narrower one had lost over a thousand beads. Happily, now, the widest belt ever made is safe from harm.

The archaeological bulletins will be continued. The third one, describing and illustrating articles made of clay, is now ready for the printer, and embraces 245 figures. The plan is simple, having but three divisions—earthenware, pipes and miscellaneous articles. Many vessels are shown and ornamentation is fully illustrated. There are some very curious New York pipes, but miscellaneous articles are few. The bulletins will not be confined to one department, and a desire has been strongly urged that the fourth should deal with some topographical features. The plan is not yet fully arranged, but will comprise a state map of moderate size and probably some others giving the more important districts. It would be well to have plans of stockades, earthworks and large villages, but this may not be practicable unless the bulletin is made of large size, as it possibly may be. It seems desirable to embrace such matter in one pamphlet, but New York has sixty counties, some with many sites. However this may be, I desire to add to the large amount of material now on hand all additional information which may be obtained. This will be digested and made as concise as possible. Sites will be described and numbered by counties, and suitable charts will be furnished correspondents when desired. In locating these sites they should be numbered on the map and in the manuscripts when possible. Direction and distance from some town or village should be given, extent, general situation, evidences of occupation, and especially whether fragments of earthenware or soapstone vessels are found. Add whatever may prove of interest. All will not be published, but all may be of importance, and will be preserved. The character of relics will often affect the probable age. My correspondents will excuse me if I do not answer them promptly for a few weeks, owing to absence in Colorado. By the 1st of August I will be glad to receive all the information possible. While such an archaeological map

of New York will be only preliminary, it is desired to make it as full and accurate as circumstances will permit. Many counties are well described; from some little has been reported.

In the way of local finds I may refer to one or two things. One of the grooved and perforated balls of striped slate comes from Genesee county. It has not been reported in the state before. An obsidian knife was found on the Seneca river this year. Mr. Richmond now has the longest stone pipe ever found in the state, and also a perfect R. Tippet pipe from a Mohawk grave. Other finds might be mentioned did time permit.

I have many inquiries as to how these bulletins may be obtained. My work is simply that of preparation, not distribution, but I am pleased to send copies to personal friends and well-known workers. The state also sends to societies and scientists when possible. To cover the need of less known persons a nominal price has been placed upon each, and I understand that an enclosure of 25 cents to the State Museum, Albany, N. Y., will procure either of those issued. The third will be out in a few months, and probably at the same rate. I mention this, as I receive letters of inquiry which I have no time to answer, and some of which swell my postage bills. I try, however, to pass over none in the State of New York, as their aid is desired in local work.

W. M. BEAUCHAMP.

Baldwinsville, N. Y.

NOTES ON DELAWARE INDIAN VILLAGE SITES, VALLEY OF THE BRANDYWINE, EAST BANKS.

(No. 9.)

That the Delaware Indians had an eye for the picturesque in landscape scenery, as well as facility in procuring food and safety from attack, were objects in view when settling at any point. In our explorations we find that wherever the scenery is commanding and the high grounds offer extended points for observation, as along the Delaware river and its tributaries, their remains are discovered in abundance. So numerous were these people that every brook or spring that could supply water for drinking and culinary purposes, has lying on its banks, and surroundings, weapons and domestic articles, artistically manufactured by these swarthy aboriginal inhabitants.

The workshop sites at the sources of the streams in this section suggest that arrow points and the delicate fish spears were the principal articles made here, while at the larger springs and small lakelôts are found net-sinkers, ice-picks, pestles, axes, celts, etc., strewn over and under the surface. The large village site workshops give evidence that the implement makers were experts in the manufacture of every implement, weapon or article of domestic use needed in the village or community.

The similarity of the rude stone implements found in and upon glacial deposits along the Delaware and in New Jersey, as well as in Europe, extends to the more finished and polished implements the world over, but does not indicate that because the same results have been wrought out by widely separate peoples, there was a kinship.

Turning our attention to the implements found along the east banks of the Brandywine, we find that the implement maker's taste differed the same among the savage races as it does among his successor, civilized man. Widely differing shapes, of wrought stones, apparently, have had an identical purpose, they being more numerous than the occupations of these primitive inhabitants. While weapons here abound, domestic and agricultural implements approximate very closely in abundance. The hoes, skinning knives, nut crackers, mortars, pestles, paint cups, smoothing stones, etc., picked up by us in earlier times equal the

former in every instance whenever in quest of these interesting objects relating to primitive man.

On the high grounds on the east side of the stream, in early times, was a small lakelet. Around this lakelet, now dry since the removal of the forest in the vicinity, we learned our first lesson in the existence of man in the valley of the Delaware during the melting of the great moraine ice sheet, of which more later on. At the mouth of the small stream, where the overflow of the lakelet emptied into the Brandywine, was located a sub-prehistoric camp site. Here hammers of every imaginable description might be gathered by the hundred as late as 1860. But at that time the writer was on the lookout for the finer class of relics and paid little attention to hammer stones, nearly all of which found a resting-place in the adjacent highway, placed there by the unthinking "roadmaster" to ballast the public road. Half-way from the lakelet to the river were a series of menhirs, or three standing stones, roughly hewn and about six feet in length. About five hundred yards west of the pillars of stone was a large spring and sub-camp of Delaware Indians. The weapons here were all manufactured from quartzite and chert. Among the relics we found a skull-shaped stone weighing about eight pounds. The composition of this peculiar stone was hornstone. For what purpose it was designated remains a mystery.

These standing stones remained standing nearly perpendicular until 1844. In 1850 two had tumbled over. The last one has been turned over by vandals and a portion of another one remains. One is entirely gone and a large portion of the second one, and the third may be removed at any moment. The stones were composed of Potsdam sandstone, twelve by fourteen inches in thickness and six feet in length, two feet apart, forming a triangle.

From the spring to the source of the Brandywine numerous relics of jasper-white quartz, hornstone, argillite, chert, etc., are found. In Wolfe's ravine, on the west side of the stream, near its source, we found a number of teshoas chipped from Potsdam rock, native to the region. Following the west banks of the stream in a southerly direction a distance of a mile or little more, are located several springs, which issue out of the granulitic rocks on the hillside. Here, basking in the sun, primitive man had found a "paradise," and a grand spot for the manufacture of net-sinkers. In the vicinity of these springs upwards of a bushel of net-sinkers were picked up, many of which were in an unfinished condition, while others were artistically rounded and grooved.

In my notes of November, 1876, I find: "More cap-stones, resting-stones in the manufacture of arrows, cupped stones, pitted and curiously marked, are found in the valley of the Brandywine than at all other village sites combined." Twenty-one years' subsequent practical archaeological field work in a large scope of country has resulted in proving the above correct.

George H. Fountain, of Plainfield, N. J., in his interesting article on "Cupped and Pitted Stones," in the October number of *The Antiquarian*, says: "Among the most interesting, because the most mysterious, of the implements of the stone age are the cupped or pitted stones found in all parts of the world, wherever ancient or primitive man has been traced. Little attention or study has been given, at least to the writer's knowledge, to these peculiar implements, for implements they surely are, and yet they undoubtedly played a prominent part in the domestic economy of aboriginal life." Mr. Fountain, in concluding, summarized what seems to him the negative, or non-uses, of the curious implements.

We will conclude this paper with a concise abstract from our 1876 November notes on the cupped, or pitted, stones in the valley of the Brandywine: 1st. The larger stones, where the cavities measured from one to three or more inches in diameter, we classified as lap stones; probable uses, for nut-cracking, pounding

acorns, herbs for medicine and receptacle for holding oil. Others, with long and narrow depressions, also of hard glacial boulders and good size, we denominated work blocks for holding small blocks of jasper or argillite when engaged in making arrows. The small, deep-indented ones were, no doubt, pivot supporters, as noted by the editor of *The Archaeologist*. Then, again, a number of greasy-looking flat stones, from a quarter of an inch in thickness by three in length and one and a half inches wide, have from four to six indentations on either side. These we denominated scoring or game stones. Others, again, were circular-shaped, an inch in diameter, three-fourths of an inch thick, with a cup-shaped indentation three-fourths of an inch in diameter and nearly five-eighths of an inch deep. These we supposed to have been used by the medicine man during his incantations. The prevailing stones used for pitting, or games, were procured in the immediate vicinity, boulders and drift pebbles, and must have tasked the patience of the primitive implement manufacturer. One solitary stone, composed of Potsdam sandstone, has a hole bored into it three inches in depth, the use of which we cannot fathom.

The above is merely copied from our 1876 notes and our surmises are open to discussion and correction.

CHAS. LAUBACH.

Riegelsville, Pa.

SO-CALLED BANNER STONES.

It is fortunate (?) for archaeologists that they always have a harbor of refuge in the word "ceremonial" whenever they are asked concerning the use of any implement of unknown utility; and while the "ceremonial" answer may be satisfactory to the questioner, it certainly ought to occasion a twinge of conscience to the true student of archaeology whenever he is forced into that retreat.

Among the most common, if not the most common, implement to which the word "ceremonial" is applied, is that of the form known as the "banner," or "butterfly," stone. These stones, as illustrated in my collection and in others that I have seen, are of all shapes and sizes, up to twelve inches, and of all degrees of thickness and thinness. While they differ thus in many ways, they all resemble each other in that they are all drilled completely through the thickest part. Several in my possession are simply naturally shaped pebbles, two by two and one-half inches in diameter, drilled through the center; others, because of their form and thinness of wings, are best described as "butterflies." Some of the wings are not over an eighth of an inch in thickness, while yet others are of "pick" form.

Taking them as a whole, we cannot conceive, at least by a superficial study, of any utility whatever, carrying with it the wear and tear of common every-day use; and hence we ascribe to them a special use, and take refuge under the word "ceremonial."

Civilized man, as a rule—and I do not believe that uncivilized man was an exception—is not prone to labor for labor's sake. There must be some incentive, other than the love of the "sweat of the brow," that induces man to bend his back in work. The religious instinct, no doubt, is one of the strongest in man, and is one of the greatest dividers between him and the brute; but there is an instinct, common to man and beast, that compels them both to seek first the sustenance of life, and the foundation of life is in the stomach. Man's desire for religious or spiritual food is subordinate to his carnal wants or, rather, needs.

The great incentive, then, to labor is the necessity of food. As far as necessity was concerned, man and beast were upon the same level, and they doubtless both met the necessity and satisfied their hunger in the same manner by tearing and eating their food in the natural, or raw, state. But man possessed an instinct which the brute did not, and because of it he soon left the animal creation behind.

The lightning flashed from the clouds, the tree burst into flames, the dried grass which he had gathered for his bed caught fire, the carcass of his prey, hanging from a limb, fell and was partially roasted; he ate of it, and knowledge and wisdom came with the taste. Cause and effect: Man grasped it and was lord over the brute. He is now ready to "labor" for another taste of cooked food. How man discovered the art of making fire after the lightning gave him the knowledge of fire, is hard to say.

He threw a stone at his prey; it struck another stone; the sparks flew; he recognized the lightning; he gathered grasses and struck again; fire is his servant from henceforth. Step by step he advanced in his "fire art," until at last he evolved the drill fire stick, worked between the palms of his hands. Then some Edison of his race twisted his bowstring—under pressure of "necessity, the mother of invention"—around an arrow shaft, and used it for a drill. In drilling for fire he bored and burnt through his wood; the block slipped up the shaft; perhaps he was too lazy; perhaps he couldn't get it off; at any rate, he tried a new piece of wood for his fire; the block gave momentum to the shaft—labor was lightened. From boring wood to drilling stone is but a step. Stone was heavier than wood—it gave more momentum. Did he make a "ceremonial" (?) banner stone to give momentum to his fire drill?

A few questions as to the distribution of the so-called banner stones, and also their association with the fire drill art, might help us to drop that word "ceremonial," at least in relation to these most interesting objects. Let the readers of *The Archaeologist* take up the question and compare notes.

Plainfield, N. J.

GEORGE H. FOUNTAIN.

THE ABORIGINAL STONE IMPLEMENTS OF THE SAN JUAN ARCH- IPELAGO.

At the southern extremity of the Strait of Georgia where it separates the north-western mainland of the State of Washington from Vancouver's Island, a little north of its junction with the Strait of San Juan de Fuca, there is an extensive group of islands, of which fourteen belonging to the United States, constitute a county of Washington named San Juan (San Wan). The county seat of this island county is Friday Harbor, situated on San Juan island; and this island was in early days claimed by both England and the United States, and was for a time garrisoned by soldiers of both nations, until finally the dispute was settled by arbitration; being submitted to the decision of the old Emperor of Germany, he said it belonged to us. So much for geography and history.

For ages before the white man set eyes or foot upon the numerous islands of this archipelago they had been inhabited by the American Indian, who has left here abundant traces of his occupancy and the degree of culture he had attained. These relics clearly indicate that he had made but little progress even in the rude arts of the stone age, as the weapons and implements we find about his ancient village sites and camping places are far inferior in workmanship to those left by his more advanced kinsmen on the main land farther to the east and south. The material from which the natives of these islands made their implements is chiefly a black, compact slate, probably volcanic, quite hard and of uneven and refractory fracture; and that fact may account to some degree for the apparent want of taste or skill of the native artisans. Of several hundreds of arrow and spear points found here that I have had an opportunity to examine, not one was entirely perfect: all are characterized by want of symmetry and finish. However, there are occasionally discovered among the coarse native implements some finely wrought from obsidian, jasper, serpentine, and the closely-grained black "knife-stone," that clearly show different style of workmanship, and are no doubt

of foreign production, having found their way here as reprisals in warfare, or through the channels of trade; as it is well-known that all the coast tribes had extensive systems of barter, or commerce. An evidence of this fact here is the occurrence of ornaments and implements of copper, a metal not found native on these islands, and obtained no nearer than the Rocky Mountains, or the frozen regions of the north. The best specimen of this class I have seen is a totemic, or ceremonial, object, approximating a fish in shape, cut from sheet copper the eighth of an inch thick, found on Lopez island, east of us, the second largest of this group. This copper, uniform in thickness, was twenty-eight inches in length and two and a half inches in width, and may have been designed to be worn as an ornament.

Among the native stone weapons of this insular region a not uncommon class are what seem to have been employed as spear or javelin heads, from six to eight inches in length, by an inch, or less, in width and thickness. They are made of soft, gray slate, easily worked, and were apparently formed by rubbing or grinding on harder sandstones. They are certainly too soft and easily broken for use in war or for killing large game, and probably were intended only for spearing fish and crabs. The spear points usually found here, of native manufacture, are small, seldom more than three, or three and a half, inches in length, by one and a half in width, and quite thick and rough, and may have been used either as spear or arrow heads, as occasion required. One of this kind was recently shown me that was found in the skeleton of an elk, on Turtleback Mountain, on Orcas island, supposed to have caused the animal's death as the armament of an arrow. The bones and horns of the skeleton were so far decayed that they crumbled to pieces when disturbed.

In cultivating the former marshes, now reclaimed by drainage, there is now and then a beautiful obsidian spear head brought to light by the plow, obtained perhaps from Arizona or California; or lost here by hunters from the mainland, who visited these islands at certain season for game frequenting these fresh-water lagoons, now converted into our most fertile soil. These intrusive weapons are large and perfect in shape and of superior workmanship.

On the bank of a little cove, mentioned by me in a former paper, jutting in from North Bay, on this (San Juan) island, is one of the many old village sites where long ago dwelt some of the primitive islanders, as is evidenced by the shell heap extending along the shore for over two hundred yards. In addition to the bones—a few of which were submitted to Prof. Mercer for identification—I recently secured the skull of an Indian, artificially flattened in front, which was exposed by action of the sea at high tide in cutting away the accumulated mass of camp debris along with a part of the shore upon which it rests. On the beach below this disintegrated pile of decayed shells, and submerged by the sea at high tide, lie the chips and rejects of an ancient implement-maker's workshop, which was originally located on the bank above high-water line; but the undermining action of the waves washed it down to the sands below tide level. In this establishment the only raw material used was the hard black slate, before mentioned; and this, when the tide is out, we find scattered about in every stage of manufacture from masses as large as a person's head, to chips of all sizes, and every variety of rejects, up to a few very rudely formed implements, some whole, but the greater number broken. In this rubbish an occasional fragment of a pestle, and now and then a hollowed out beach boulder, five or six inches in diameter, mortar-like, are seen, together with a few small perforated flat pebbles no doubt designed for sinkers for fishing lines or nets. From the paucity of specimens here worth preserving, I thought that other collectors had preceded me in this field and secured everything of value; but I learn that such was

not the case, and that I was its discoverer; so we must conclude that the old-time artisans who ran this shop were poor in material, resources and skill.

Erosion of the shore line by the surf has exposed a verticle section of the shell heap well into its interior, affording a very favorable opportunity for the examination of its contents without labor of much excavation. These immense accumulations of camp refuse must represent the lapse of corresponding great periods of time, extending perhaps into centuries. Consequently had the Indians who piled up such masses of food debris been a progressive people, a record of their progress would be found here. But no improvement in their condition can be noticed from the first layer of shells on the beach up to the last. Not a vestige of pottery has yet been seen; from which the inference is plain that they knew nothing of its use. They left nothing to denote that they practiced agriculture in any manner. The pestle-like stone implements occasionally disclosed may probably have done duty simply as hammers; for no mortars of adequate size to fit them have come to light; and it is barely possible that those Indians had mechanical skill enough to make mortars of wood. The stone mortars we now and then find here are quite small, and are nothing more than large water-worn pebbles rudely hollowed out, better suited for grinding paints than for reducing dried meat and berries, which, according to tradition, was one of the important items on their bill of fare. From the bottom to the top of the shell heaps here we find only the same rough, ill-shaped arrow and spear points of stone, and occasional implements of bone and of shell, mixed in with shells of the clam and sea urchins, and bones of different fishes, with those of the coon, fox, deer, bear, water fowls, etc.; all of which plainly tell us that these ancient shell-heap Indians were low-down in the scale of even primitive savage life. The question here arises, what relation did these savages—who, to save labor, buried their dead in their shell refuse—bear to those Indians on these islands who cremated their dead in cemeteries on neighboring heights and headlands, or erected over them mounds enclosing tombs of stone?

WM. H. THACKER.

Friday Harbor, Wash.

CORRESPONDENCE.

To the Editor of The American Archaeologist:

With regard to the contemporary existence of man and the mastodon in America, the evidence tends to prove it; yet, I do not think it definitely settled. In Pettis county, in this state, worked flints of large size, six inches and over in length, were obtained from a spring, associated with bones of the mastodon. Near Augusta, in St. Charles county, similar bones were obtained from the clay in a brach; arrowheads seemed to be abundant on the hills on each side, but none were found immediately with the bones. Both flint implements and mastodon bones have been found in the loess, or drift clay, at other places, indicating the existence of man while the loess was being laid down. Still, in these instances the remains of man and the mastodon may have been subsequently drifted together from different localities. As I have said, it looks somewhat as if man and the mastodon were contemporaneous, but it is not altogether proven. I am inclined to think, though, that they have both existed at the same time.

State University, Columbia, Mo.

G. C. BROADHEAD.

[The opinion of an ex-State Geologist and Professor of Geology in a State University on this profoundly interesting question is entitled to high respect. We regret that Professor Broadhead did not see fit to enter more deeply into its discussion, and give us some stronger reasons for his belief.—Editor.]

To the Editor of The American Archaeologist:

I have been much interested in the articles recently published in The Archaeologist relative to frauds in Indian relics. Would it not be a good plan to keep a printed list in The Archaeologist of all known fraudulent dealers in Indian relics, and also to influence all like publications to do the same?

Elkhorn, West Virginia.

W. V. NANCE,

[We are busily collecting evidence with the view of doing that very thing.—Editor.]

CROOKS AND CEREMONIAL CROOKS.

To the Editor of The American Archaeologist:



I am in receipt of The American Archaeologist for May, and was much interested in your editorial on "Counterfeiting Indian Relics." Above you will notice tracing of "crook" which I bought of L. W. Stilwell, of Deadwood, S. D. I wrote to him asking if he had something (I have forgotten what), and the first I knew he sent me a cigar box full of the flint relics, and among them four of these "crooks." I never had seen anything of the kind before, so I bought the one outlined above and sent the balance back; and then wrote him about coppers (I like coppers better than flints), and he at once sent me all the spears, arrows and knives of copper he had, and a bracelet and pendant from Oregon. The bracelet and pendant I knew nothing about, but was convinced the instant I saw the other stuff that it was "bogus." I sent one of them to A. W. Robinson, with tracings of the rest, and he at once confirmed my judgment, saying that they were all bogus, and that he had seen some of them before. So I sent the whole lot back to Stilwell and told him that if he was perfectly honest in the matter he would give me names of parties from whom he bought the coppers, and I would do what I could to bring them to justice.

I have been unable to hear from him since. I had no idea that the crook was not genuine until last night. Please tell me if there are any genuine "crooks," and what you think of mine; also what you think of Stilwell, a man in the business fifteen years, with a large establishment, and does not know the difference between bogus and genuine coppers, and also sells "crooks" from Scott county, Va. He has a long advertisement in your valuable publication. That's what beats me.

Wantoma, Wis.

GEORGE S. YOUNGLOVE.

[We can assure Mr. Younglove that not one of the so-called "Ceremonial Crooks" is genuine Indian work. They are all bogus; and his is only one of hundreds, perhaps thousands, from the same factory. Mr. Stilwell is competent to speak for himself, no doubt. We are not at present in the position to express an opinion of him, or his dealings. We, however, endorse the point Mr. Younglove makes, that a person handling thousands of specimens during the fifteen years of experience in that business should be sufficiently expert to detect a fraud or counterfeit at once. We are not responsible for the moral rectitude of our advertisers any more than we are for the opinions and statements of our contributors and correspondents. We have no reason to doubt that dealers who favor us with their advertisements actually have the objects they offer for sale; and must regard them as conscientious and honorable, until the contrary is proven. When convinced that any one of them is wilfully practicing deception we will not hesitate to let the public know it. As further corroboration of our assertion that all the so-called flint crooks are products of the Flag Pond, Va., factory, we submit the following communications:—Editor.]

J. H. ROBINETT,

Dealer In

General Merchandise, Clothing, Gents' Furnishing Goods, Drugs, Furniture and Sewing Machines.

Flag Pond, Va., feb. 1st, 1898.

Dear Sir—Receiving one copy of you American Arch and noticing that you are a collector of Indian Relics, ect. I Have a fine Lot of veary Rare specimens of Indian Relics for witch I wish to Exchange for medical Books. As I am Studying M. D. and want all the Book containing thare of I will Ex. Rare specimens such as pipe axes, celts, Speare Heads from 3 to 6 in Long in perfect condition. Also I Have Some Rare flints Crooks Reap Hook, ect. Like this (figure similar to that above) and others just as Rare. Let me know what you Have in the Line of Medical Books, ect., to Ex.

Resp.

J. H. ROBINETT, M. D.

To the Editor of The American Archaeologist:

On receiving the American Archaeologist this morning I notice you expose the Robinett family, of Flag Pond, Va.; Democrat, Va., etc.

I want to give my experience with this family. A little over a year ago I saw an exchange ad. in the "Hearth and Home": "Indian relics to exchange for calico," etc., by Mrs. M. E. Robinett, Democrat, Va. I wrote to this Mrs. Robinett and made an

exchange for some so-called Virginia arrows, and supposed that ended the deal; but in about a month she sent me some "sickles," "fish hooks," or "crooks" of flint. There were four of them. I was suspicious and sent them to Rev. W. M. Beauchamp, who thought they were all O. K., if "they did not find too many." On the strength of this I sold three of them, as Mrs. Robinett said they were very rare and these were all she ever had. In about six weeks I received five or six more of these "crooks" from a "J. M. Robinett." Mr. Beauchamp advised me to send these to Commodore A. E. Douglass, at the American Museum of Natural History, in New York. I did so, and Commodore Douglass thought they were all right, but it depended on where they were found, and who I got them of. Before I answered Mr. Douglass' letter I received and filled an order for two "crooks" out of this lot. The same day I wrote to Mr. Douglass and told him they came from the Robinetts. He then wrote me they were not genuine and that several others from different parts of the state had come in for inspection. I called on all the collectors here in town and found that nearly all of them had from one to three "crooks," and one fellow had twenty (20). We gave from 25 cents to \$2.00 each for them.

I think it would be well to investigate the methods of doing business that Wm. Perry Wakefield, A. I.; Wm. Perry Arnold, Macedale, R. I., and W. P. Arnold, Stonington, Conn., use. I have a suspicion that the three are one, and could give you letters which will prove it.

X.

Oswego, N. Y.

[We have investigated Mr. Wm. P. Arnold, and have found him to be one and the same ubiquitous individual above represented. He is not charged with counterfeiting Indian relics, but with being totally unreliable and irresponsible. We advise those having dealings with him to pay for nothing until the desired articles have been received and satisfactorily inspected.—Editor.]

EDITOR'S DEPARTMENT.

DR. J. F. SNYDER, EDITOR, - - - - - Virginia, Ills.

PROF. A. F. BERLIN, ASSOCIATE, - - - - - Allentown, Pa.

All communications for the Editor must be addressed to Dr. J. F. Snyder, Virginia, Cass Co., Ills.

In answer to an Eastern correspondent who asks us what the State of Illinois has done for the exploration and preservation of the mounds, and other remains of the aborigines, within its limits, we regret to have to answer that, officially, or by its Legislative authority, the state has done nothing beyond expending a few hundred dollars for the purchase of a small collection of Indian relics, added to its Geological Museum. It has at no time, by any official act, taken the least cognizance of its numerous prehistoric antiquities, or in any manner given aid or encouragement to citizens interested in their preservation. The late Prof. A. H. Worthen, for twenty-two years State Geologist, eminent in that science, and whose Survey and Reports of the Geology and Palaeontology of Illinois will stand as an enduring monument to his learning and genius, believed that most of the mounds in the state were natural elevations, and that its archaeology had no place in science. His successor, however, Prof. Lindahl, conjointly with the State Board of Agriculture, caused to be made, under the supervision of Hon. Wm. H. McAdams, a very creditable display—in large part borrowed—of the aboriginal pottery and stone implements found in the state, at the Columbian World's Exposition at Chicago, in 1893.

We do not know a faculty member of any Illinois institution of learning, or official of any one of its numerous other state institutions, who is specially interested in Illinois archaeology. We have never heard of an exploring party having been sent out, or a dollar expended, by the Illinois State University, or the famous Evanston University, or the Field Museum, or by any of the many State Normal Schools, or local colleges, for the systematic investigation of the prehistoric Indian remains of Illinois. It would seem proper that such studies as

archaeology, like charity, should commence at home; but, while the Field Columbian Museum, and one or two of the other large and wealthy institutions in the state, have equipped and sent exploring agents to the far Northwest; to Central and South America, and to other remote corners of the earth, to study archaic man and his works, a rich field for his research at their very doors, has been overlooked.

Something has been accomplished, however, in a desultory and disconnected way, to enlighten the public regarding primitive life in Illinois, by a few of her citizens whose enthusiasm in pursuit of this knowledge far exceeded their command of time and means. Among these were Col. J. W. Foster, Dr. Charles Rau, Hon. Wm. H. McAdams and Dr. John J. R. Patrick, who have gone to their endless sleep; and yet remaining and still at work we have, of this intellectual band, Dr. Cyrus Thomas, Rev. Stephen D. Peet, Judge John G. Henderson, Charles A. Dilg, Hon. James Wickersham (now of Tacoma, Wash.), George E. Sellers, and perhaps a few others.

The unpaid labors of these men compensate, in some degree, the neglect by the state of a great work properly its duty to conduct by legislative aid, by special agents, or through the medium of its educational institutions. In New York, Ohio, and other states, a great deal has been done by state authority and at public expense, to rescue local traces of aboriginal life from total disappearance and loss, and to preserve and properly interpret them. In Georgia this important task was ably executed, without public assistance, by one of her honored sons and most brilliant scholars, the late Col. Charles C. Jones, Jr., and in Tennessee by his gifted brother, Dr. Joseph Jones, and General Gates P. Thruston, also at their individual expense.

The largest artificial mound in the United States is in Illinois. It is surrounded by more than sixty conical and oblong mounds, including several of immense proportions. A few miles east of it is Emerald mound, one of the most beautiful and perfect of pyramidal, temple mounds to be found north of Mexico. From Cairo to Cahokia the stone grave Indians left their distinct traces in cist burials and superior effigy pottery. At the Saline Springs, in Gallatin county, our early pioneers found the hills covered with fragments of huge pans of coarse pottery made and used by the aborigines in obtaining salt by evaporation. All along the bluffs and fertile bottoms of the Ohio, Wabash, Mississippi, the Vermilion, Kaskaskia, Illinois and other rivers of the state, the mounds and graves, the village sites and implements of its primitive inhabitants have been found in the greatest abundance. Along Rock river, and other picturesque streams of the north, the great totemic effigy mounds occur; and throughout the state are seen defensive embankments, signal mounds, and other reliques of a military people. Their arts, and far-reaching commercial intercourse, are disclosed by their ancient earthen sepulchres in giving up exquisitely wrought objects of stone; and of marine shells from the Gulf of Mexico or Atlantic; of copper from the far north; of mica from North Carolina; of Catlinite from Minnesota and obsidian from Mexico or the Rocky Mountains. These valuable relics of antiquity are rapidly disappearing before the rushing economic forces of civilization, and vandalism of ignorance and cupidity; and not a motion has been made by either the state or its institutions to stay their wasting, or record an account of their existence.

We some time ago received a duplicate series of the relics from San Nicolas Island, California, described in our April number by Major H. N. Rust, to replace those he previously sent that were lost on the way. At the earliest opportunity practicable we will present a cut of them, with further descriptions and comments. Those desiring specimens of this class for their collections will do well to address Major Rust, at South Pasadena, Cal.

To the spirited and timely communication of Mr. W. W. Gilman, in last month's issue, on the prosecution of relic counterfeiters, we omitted to add his address. He is an able and successful lawyer of the firm of Clancey & Gilman, attorneys, Madison, Wis.

Mr. H. P. Hamilton, at Two Rivers, Wisconsin, has a large lot of Oregon and California arrow points for sale. He is not a dealer in Indian relics, and the specimens he offers for sale, or exchange, were not obtained from dealers, but from the original finders, by himself. For some time he made a specialty of securing this class of fine prehistoric weapons for his own collection, which he now finds largely overstocked with them. Hence his offer to dispose of them.

At a late meeting of the French Academy of Inscriptions, Mr. Babelou, curator of the medals, exhibited two very interesting coins struck by the city of Medaba, in the Moab district. The coins were made of bronze, and have on the obverse the portrait of Elagabalus. On the reverse is Isis-Astarte, holding the head of Osiris. Up to this time no coins were known bearing the name of the town of Medaba. The coins are also very curious as a late reminiscence of the Osirian legend.

Another very interesting discovery was made by Mr. Besnier, who is making excavations in Algeria, at Lambessa. In a room supported by columns he discovered an inscription relating that the room was used as a "tabularium" by the Third Legion. The room was a meeting place for all the officials of the military administrative department, all of them belonging to a sort of mutual benevolence society, the by-laws of which are stated there in the inscription.

A remarkable discovery was recently made in Egypt when the royal tombs at Thebes were being explored. One of the tombs which was opened was found to contain the mummies of seven kings of Egypt who reigned between the years 2500 B. C. and 1150 B. C.

Well-preserved flowers discovered at Dahsourh, in Egypt, in tombs of the times of the Pharaohs, have just been placed in the Cairo museum. The commonest of these are the white and blue lotus, the red poppy, the leaves and flowers of the pomegranate, of the saffron, and of the crocus.

Miss A. B. Picher, of Pasadena, Cal., will send her very interesting ethnological collection, which has for some time been on exhibition at the Los Angeles Chamber of Commerce, to the exposition to be held at the city of Omaha. One hundred and fifty feet of space has been given to this exhibit. It will be placed next the Mexican folklore display from the Chicago university, collected by Professor Frederick Starr.

The exhibit contains books with photographic illustrations, historical patterns of needle work from India, China and Japan and drawn by native Indian women. There are fine specimens of Indian and other basketry, documents, manuscripts, a missal made by the mission Indians, valued at \$1000; historic figurines, facsimiles of the patron saints of the missions; full equipment of a California caballero; clay pictographs and other things illustrative of the ethnology of California in the broadest sense, in comparison with Mexico, Spain, China, Alaska, Oregon and Arizona.

There is a special display of agate, yucca and special material to illustrate California Indian sun worship. A set of rice paper pictures in the collection were annotated by a Chinese expert, for comparison with Aztec picture writing. It is intended to send this valuable collection to the Paris exhibition, and finally it will find a home in the Smithsonian institution.

It will be displayed under the title "El Camino Real," the king's highway. This was the old name of the public highway that led from mission to mission through the state, though in a broad sense, every public road in the old Spanish days was the king's highway.

Dr. Hogarth, who has been directing the excavations in the Island of Milo, made under the auspices of the English school of Archaeology, has recently published the result of his work. The first ruins brought to light were those of a very ancient Acropolis; there were also discovered the structure of three towns, each built over the other, and two of them, as indicated by the style of the fragments and vases, belonging

to the Mycenaean era. The third is understood to lie next to the rock. The Acropolis belongs to the island epoch, before the introduction and development of Mycenaean art. The excavations are regarded as very important in relation to the origin and extension of Mycenaean art in modern Greece. Professor Marder, ex-director of the school, accompanied by about twenty students from University College, London, lately arrived in Athens, and will at once repair to Milo to visit the excavations.

The finds of old gold and silver coins at Santiponce, near Seville, have brought many antiquarians to the spot. The excavations have been continued with great zeal, and among the latest finds are a Roman marble statue in complete preservation, an amphora and some fine mosaics. But more interesting still is the location of the walls of ancient Italica, a portion of which has been laid bare. They were made of roughly-formed stone and mortar without battlements, but a truncated square tower in a perfect state of preservation is the latest discovery. Santiponce is among the hills that bound the valley of the Guadalquivir on the west and is about three miles from Seville, which is across the river on the other side of the valley. The town of Italica was founded by Scipio Africanus in the second Punic war. It was the birthplace of the Roman Emperor Trajan.

The Smithsonian Institution will soon publish a most interesting account of excavations recently made near Winslow, Ariz., under its auspices, the result of which was the discovery of many things of archaeological importance. Dr. J. Walker Fewkes had charge of the digging, which unearthed portions of the ruins of four ancient and long-buried cities. The aboriginal inhabitants of the region have traditions to the effect that the towns in question were the dwelling-places of remote ancestors of their own, and the "finds" made incidentally to the excavations seem to show that this belief is presumably correct. Up to a comparatively recent date the walls of the ruined buildings rose to a considerable height, but the Mormons, in constructing the near-by Sunset City, now itself in ruins, utilized the stones for their houses.

One of these buried cities, to which the most careful study was given, was evidently a pueblo of great size, of a rectangular shape, and enclosing plazas. From this ancient ruin, now represented only by a huge mound, were taken several hundred beautiful objects of prehistoric handiwork. They were obtained from the necropolis, or burial place of the pueblo, in the very shadow of which the dead were interred, not being carried away to any distance. Almost every grave was indicated by a flat stone slab, which lay above the skeleton. Many of these stones were perforated with round, oval or square holes. Some of the bodies were extended at length, while others had their knees drawn up to the breast.

Many vases and pots were obtained which bore strange designs, mostly representing mythological birds and beasts. Their significance, as illustrating the mythology of the people to whom the pottery belonged, is ascertainable to some extent from the traditions still current among the living aborigines. One design, wholly unique, is painted on the bottom of a bowl. On one side of the rim is represented the upper part of a man, and below, in the interior of the bowl, are two footprints, as if the man had leaped into the receptacle. From these a line of footprints extends across the bottom of the bowl, ending at the opposite rim, behind a figure of the lower body and legs of a man crawling out of the bowl on the opposite side.

On another piece of pottery, a food basin, is a figure of a spider, representing the mythological Spider Woman. She is an earth goddess, bride of the sun, and the mother of the twin war gods.

The priests made elaborate prayer sticks, some of which were several feet long, and painted them with yellow, green, blue, red, white, and black pigments, the same as those used by their descendants. They prized for ceremonial purposes quartz crystals, stone concretions, and fragments of obsidian. They were acquainted with bells made of copper. They had rattles of sea shells, and wore fringes of shells on the margins of their garments. In ceremonials they made use of stone slabs painted with animals.

The warriors were armed with bows and arrows tipped with stone and obsidian points. They had clubs, stone hammers, and axes. They made needles, bodkins, and awls of bird-stones, antelope tibiae, and ribs, which they sometimes carved in imitation of animals. The women were adepts in the manufacture of earthenware vessels, which they decorated with elaborate figures in several colors. They were familiar with the art of glazing pottery, and practised etching of the same to a very limited extent. They buried their dead just beyond the outer home walls, and deposited with them various votive offerings, pottery, basketry, ceremonial and other paraphernalia, having first painted the face and wrapped the body in matting. The symbols on their pottery

indicate that they recognized the sun and spider as powerful deities. They worshipped the rain, clouds, lightning, snake, tadpole, frog, and various mythic birds. They entertained an idea of a future life, and associated the dead with rain gods.

An examination of the contents of the cases of the first and second Egyptian rooms as now exhibited shows that the British Museum possesses about forty-four mummies and about eighty coffins, not including covers of coffins and various fragments. Taken together, these represent a period of about 4000 years. The oldest mummified human remains in the museum are those of Mycerinus (case A), the builder of the pyramid of Gizeh, about B. C. 3640; and most modern those of a lady whose name is unknown, who, together with her three children, was mummified about A. D. 400 (case EE). The cover of the coffin of Mycerinus, which is exhibited below the fragments of his mummy, is inscribed with a text that in his time was already some thousands of years old, and it is noteworthy that at this remote period the king is inscribed as "living forever" by the words on it. No further proof that the Egyptians, in the earliest times, believed in the resurrection and in a future life is needed.

While there is some doubt which of the Pharaohs was on the throne at the time when Moses was born and at the time of Israel's exodus from Egypt, yet there is a general consensus toward the recognition of Thothmes III, of the eighteenth dynasty, the father of Amenophis II, as the Pharaoh of Joseph's day. In the eighteenth dynasty four Pharaohs followed. Then came Rameses I and Seti I, kings of the nineteenth dynasty. Seti I was probably the Pharaoh who "knew not Joseph." His mummy has for some years been lying in one of the museums at Cairo. The Pharaoh of the oppression, the one who ordered the death of the Hebrew male infants, is thought to be Rameses II. His was a long reign of about sixty-seven years; his mummy also was found some years ago. After his death, Manepthah reigned eight years; then came Seti II, or Seti Manepthah, who reigned four years, and then (after a brief usurpation) Siptah or Siptah Manepthah. After a reign of seven years this king disappears mysteriously from history, leaving (as Dawson says) "a unoccupied tomb, afterward plastered over and occupied by his successor, and apparently no heir who could succeed him." If this Siptah be the Pharaoh of the Exodus, the emptiness of his tomb and the absence of any heir to the throne suggest the slaying of the firstborn in Egypt, and the (possible though not certain) death of Pharaoh at the Red Sea. Then comes the twentieth dynasty in Egypt, to which Set Nakht, Rameses III, Rameses IV, Rameses V, and Rameses VI belonged. During this dynasty were the wanderings of Israel in the wilderness and their settlement in Egypt.

Evidences of the prehistoric people who inhabited the valleys of the Gila and Salt rivers in Arizona have recently been discovered, and enough testimony has been found to reveal the fact that in those valleys once dwelt a mighty and prosperous people, numbering not less than 2,000,000, and probably reaching 3,000,000.

Vincent Smith, a learned antiquary of Bengal, has recently made some interesting discoveries of Buddhist remains in India. The first of these is the home of Guatama Buddha, who lived about 500 B. C. The ruins of this ancient city of Kapilavastu are in Nepaul territory; they are, so far as yet known, entirely of brick, and are so covered with jungle and so extensive that years will be required for their thorough exploration. Since 410 B. C. the city has been in ruins and unoccupied, and excavations are now bringing to light buildings more ancient than any previously known in India.

More interesting even than Kapilavastu is the discovery of the Lumbini Garden, the traditional birthplace of Gautama. The sacred spot is marked by a pillar erected in the third century B. C. by the Emperor Asoka. The inscription on this pillar is still perfect. It stands on the western edge of a mound of ruins about a hundred yards in diameter, and on the south side of this mound is the tank in which the child's mother bathed after his birth.

Another discovery, which was made in a stupa, or brick tumulus, close to the British frontier, is that of relics of Buddha himself. These consist only of fragments of bone, which were deposited in a wooden vessel that stood on the bottom of a massive coffer, more than four feet long and two feet deep, cut out of a solid block of fine sandstone. This coffer was buried under eighteen feet of masonry, composed of huge bricks, each sixteen inches long. The wooden vessel was decayed, and with it was an exquisitely finished bowl of rock crystal, the largest yet discovered in India, and also five small vases of soapstone. All these vessels were partially filled, in honor of the

relics, with a marvelous collection of gold stars, pearls, topazes, beryls, and other jewels, and of various objects delicately wrought in crystal, agate, and other substances. An inscription on the lid of one of the soapstone vases declares the relics to be those of Buddha himself, and the characters in which this inscription is written are substantially the same as those of the Asoka inscriptions, and indicate that the tumulus was constructed between 300 and 250 B. C.

Buddha spent many years preaching and teaching at the city of Sravasti, and a large number of his sayings and parables purport to have been uttered there. The site of this famous city was long sought in vain. Mr. Smith now states with confidence that it is in the jungles of the Nepaul Terai, about eleven miles from the station of Nepalganj road, on the Bengal and Northwestern railway. Its remains, like those of Kapilavastu, are buried in jungle, but they seem of great extent, and are found precisely where the Chinese pilgrims of the early centuries of the Christian era stated that Sravasti was.

A party of scientists, headed by President David Starr Jordan, of Stanford university, has left San Francisco for Flagstaff, Ariz. This place will be made their base of supplies, and trips will be taken into the surrounding country for archaeological investigation. The Grand canyon of the Colorado and the "Enchanted Mesa" will be fully explored.

As a sequel to his discovery of the tomb of King Thothmes III, at Thebes, M. Loret, director-general of the antiquities department, has discovered and opened the tomb of Amenophis II, a king of the eighteenth dynasty, who reigned some 1500 years B. C. The find is almost the most interesting ever made in Egypt, as, although the jewelry, etc., were removed from the tomb probably during the twentieth dynasty, the mummies of Amenophis and seven other kings are intact. The tomb is entered by a steep inclined gallery, which terminates in a well of some twenty-six feet in depth; and, this obstacle surmounted, the entrance to the king's sepulcher is reached. In the first chamber the body of a man is found bound on to a richly-painted boat, his arms and feet tied with cords, a piece of cloth stuffed as a gag into his mouth, and marks of wounds on the breast and head. In the next chamber are laid out the bodies of a man, a woman and a boy. None of the four bodies has been embalmed, but, owing to the dryness of the atmosphere they are all in the most complete state of preservation. The hair upon each is luxuriant, and the features resemble to a marked degree those of the fellaheen in the present day.

The king's tomb is a chamber of magnificent proportions in perfect preservation. At one end of this chamber, in an excavation sunken several feet below the level of the rest of the floor, is the sarcophagus of the king, placed upon a massive block of alabaster. The sarcophagus is of sandstone, artificially colored a bright rose hue, and contains the mummy intact, with chaplets of flowers around the feet and neck. In a small chamber to the right are nine mummies, two of them bearing no names, and the others those of the Kings Thothmes IV, Amenophis III, Set Nakht, Seti II (supposed to have been the Pharaoh of the Exodus), Rameses IV, Rameses VI, and Rameses VIII, who all reigned between about 1500 and 1150 B. C. The tomb is that of Amenophis II, for whom it was built, and is supposed to have been opened later to receive the mummies of the other kings, probably to save them from violation. The floors of all the chambers are covered with a mass of objects—statues, vases, wooden models of animals, boats, etc., requiring immense care in sorting for removal. The whole constitutes one of the most impressive sights that can be imagined.

For the first time on record the body of an Egyptian king has been found in the tomb prepared for him, as previously discovered royal mummies have been removed from their tombs and secreted for safety at Djer el Bahari. The public works ministry has requested M. Loret to remove only the smaller objects and to leave the mummies and bodies in their present place. The entrance to the tomb will then be built up till next winter, when iron railings may be placed to prevent injury from touching.

A. F. B.

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THE CALIFORNIA INDIANS PRIOR TO 1850.

In preparing my article on "Survivals of the Stone Age," which appeared in the August (1897) number of *The Antiquarian*, I wrote to General Bidwell for such data on the subject as he, from his long residence in California, might be able to furnish me, to which I received the following reply, embodying much valuable information in point. The letter, however, did not reach me in time to be used in the article in question, and I intended to avail myself of its contents in another connection, but now submit it alone as in itself an interesting contribution to the ethnological literature of the day.

In my quest for information pertaining to the Indians of California in their primitive condition, I wrote, among others, to Major Elias Howard, of Eureka, California, whom I knew there in the early days, and whose statements I could regard as trustworthy. Major Howard was at the head of a party that reached the Humboldt Bay country from the seaward via the port of Trinidad, in April, 1850, and the vessel upon which they came was the first to enter that land-locked harbor, of which any trustworthy record is known. In an article in the "History of Humboldt County" he gives a lengthy account of their observations and discoveries. They came upon swarms of natives, upon whom the crash of firearms and the pranks of the magnetic needle in a surveyor's compass, as a "medicine" device, had a most wholesome effect as to any sinister designs the savages may have harbored.

I append Mayor Howard's letter in answer to my inquiries, as additional testimony on the subject now under consideration.

D. R. LEEPER.

South Bend, Ind.

Chico, Cal., June 30, 1897.

Hon. D. R. Leeper, South Bend, Ind.:

My Dear Sir—Yours of the 17th inst. to hand. In reply I can only say that I mourn unimproved opportunities of gaining the information you desire.

When I arrived in California in 1841 the wild Indians—that is, those who had not been compelled to live and work at the Spanish missions or on the ranches—had



John Bidwell

no guns, tools or implements, except in rare cases, when runaways from the missions might carry with them a butcher knife or some iron utensil. Some exception might be made of the Indians in the great San Joaquin and Sacramento valleys, which, for many years, had been trapped for furs by the Hudson Bay Company, and of the Indians along the route travelled by the trappers from Oregon to California, who might occasionally come into possession of a knife or something made of iron. In regard to stone implements, I have never seen any except arrow heads, spear heads and stone mortars and pestles for pulverizing seeds, acorns, etc. Arrow heads were not made of flint, because flint is unknown in California. Nor did I ever see them of iron or other metal, obsidian being mostly used, though some kinds of quartz or stone answered the purpose. The Indians in the depths of our great mountain chains—I allude specially to the Sierra Nevada and the Coast Range Mountains of northern California—were in the early forties as far from civilized as when Columbus discovered America. In fact, as late as 1844 I found Indians in the Coast Range who, till then, had never seen a white man. And there I saw the stumps of cottonwood trees, six or eight inches in diameter, which had been newly felled (as I supposed) with stone axes; for they had evidently been severed with a dull implement which gave the stumps the semblance of a coarse wooden broom, or about as a stump might look if a white man were to fell such a tree with the head—not the edge—of his axe. But on inquiry the oldest Indians now living here say that the horns of the elk were the only thing hard enough to sever the woody fibre of the trees when they required long poles for the roofs of their large sweat and dance houses. The bow and arrow was the weapon in war and to kill game. My acquaintance has been mostly with valley mission and ranch Indians. When I arrived, in 1841, even those in the great valleys had no such thing as a fish-hook and seldom a knife and scarcely ever an axe or hatchet, but they soon learned to have them. I think it probable that as late as 1850 there might have been found, in the fastnesses of the mountains more remote from the settlements and mines, Indians in conditions absolutely primitive. I should have said that all Indians, from the wildest to those nearer white habitations, were most skillful in the making and use of nets and seines to catch fish, making the twine and cords of a kind of milkweed. The Indians of the valleys never made their own bows, and seldom their arrows, but bought them of the mountain Indians. Cannot possibly write anything on the subject of ethnology, much less the faintest resemblance to such a "contribution." One thing, however, I would like to mention: Indians have sometimes been called "Diggers," or "Digger Indians." When I crossed the plains (1841) that name was not known—at least I never heard it. We met trappers in the Rocky Mountains, and old mountaineers there, and some in California—no one even mentioned the name Digger till years later. About 1845, and on, the most degraded of men—from the Rocky Mountains—began to ask when they reached California if the Indians here were "Diggers," or belonged to the "Digger tribe"? In fact, such men got to calling all Indians "Diggers," and when they killed one—which some thought no more of than of killing a coyote—they would say, "Oh, he is only a d—n Digger," as a term of reproach and degradation. As there is not, and never has been, a "Digger tribe" of Indians anywhere in America, I submit that the term is a base misnomer and should not be perpetrated. Many of the Indians of California are quite civilized—many even Christianized—should they be insulted by this ignominious appellation? People sometimes talk of Indian tribes in California, whereas no tribes existed; that is, they had no tribal chiefs or tribal names. Considerable tracts of country, but always limited, spoke the same, or similar, dialect, and may be called tribes in a certain sense. But

each Indian village had a name and a head man, or captain. But pardon me for so long a letter. It is very difficult for me to write at all, except with coarse pencil, on account of my tremulous hand, and then it happens very often to get (like this one), badly typewritten. Shall be glad to answer any questions you may ask.

JOHN BIDWELL

Eureka, Cal., August 1, 1897.

Hon. D. R. Leeper:

Dear Sir—Taking your inquiries in the order presented—whether the Indians were then in a purely primitive state (referring to this part of the Pacific coast and Humboldt Bay, at the date of our earliest occupancy, 1850)—this query may be answered by stating that the natives bore no evidences of civilization whatever derived from intercourse or contact with the white man. If expeditions of discovery ever reached this coast, we have no record of any later than that of Cabrillo, who, in 1542, discovered and perhaps landed on that most western and boldest headland of the American continent south of Alaska, Cape Mendocino. Though the Jesuit Fathers in 1769 planted the first mission within the borders of what is now the State

of California, as propagandists of that faith, in their zeal they never extended their labors north of San Francisco Bay and neighboring territory. Though over a century had elapsed since this event, no part of this coast had ever been penetrated by a solitary ray of civilization, and, seemingly, no human footstep save that of the savage had ever trod its wilderness-domain. As near as may be, the natives we found here belonged to the unadulterated Digger class. If any knowledge of the white man ever existed among them, it apparently had entirely died out of the race. Their first conception of civilized man when coming face to face together, assigned him a place as belonging to a superior race of beings, endowed him with attributes far above themselves, with powers supernatural, like unto a God; but this has proved almost always a short-lived impression among them. A later acquaintance generally modified this view and they soon came to look upon him as an evil presence—a devil. I will here mention an instance of their absurd, if not monstrous, credulity:

In our company of thirty or forty persons (males) was only one woman, the wife of one of the party. In their simplicity they believed her to be the mother of the whole lot, as being one family. And as there was no evidence of babyhood in the camp, they thought our people had reached the stature of men without previously ever having been infants.

In many of their devices the Indians showed considerable ingenuity, yet in constructive skill their knowledge was at zero. They were not artificers in metals. Some rudely-made knives were found in use among them, evidently formed of hoop-iron from casks that had been thrown ashore by the sea. Even the manufacture of pottery seems to have been unknown to them. Utensils for domestic use, for reducing seeds and acorns to flour for their food, such as the mortar and pestle were of stone obtained from the interior tribes in barter for kinnikinnic



E. S. Howard

and abalone shells, which abound on the coast. Their weapons of warfare, the spear and the arrow, were equipped with heads of flint and obsidian, which also were the product of the more ingenious and skillful tribes of the mountain country. They were supplied to them through the same medium of exchange. Bone and elk horn wrought into implements shaped like the awl, and cuneiform, were of common utility among them.

Whether I ever saw them splitting out any of those redwood puncheons? and if so, how they did it? I will answer that I never saw the work while being actually done, but I think it may be answered as satisfactorily, to my own mind at least, as if I had actually seen the work performed. The Indian was never known to cut down or to fell a forest tree. Stock of the "raw material" for puncheons, canoes, etc., was always in supply for their wants, found on the shore of the bay or ocean. Canoes of several tons' capacity and easily carrying twenty-five or thirty grown persons, were made from the huge redwood trunks by aid of their rude tools of elk horn, wedges and fire, which last they well knew how to make serviceable for this purpose.

I have seen many remains of the trunks from which they got their puncheons. As has been usually thought, the stem, or body, of the trees was not made into logs by cross-sectional cuts. Having selected the tree lying on the shore above the level of usual tide water, the first work was to strip off from the upper side enough to make a face surface to begin upon. At a distance apart, according to the required length of the boards or puncheons, transverse grooves were cut to the depths of several inches and of sufficient width to give space for the use of their wedges at each end. These wedges were thickly set and gradually driven in. If the wood proved refractory or irregular in grain, a row of wedges was entered longitudinally along the desired line of cleavage and (favored by the remarkably free splitting quality of that timber) a large number of these slabs from three to six inches thick and from four to six feet wide might easily have been taken from one trunk. If these were thicker than were convenient or necessary for use, they were again split and reduced to the proper dimensions. A number of abandoned jobs, where the tree turned out to be too tough and refused to yield to the methods applied, have come under my notice, and also some that had been successfully worked out with the slabs still lying near by. E. H. HOWARD.

PREHISTORIC REMAINS OF THE TUNXIS VALLEY. (Second Part)

BY FREDERICK H. WILLIAMS, M. D.

AMULETS.

These are long and narrow stones, always highly polished, usually made of black or banded slate, having one face flat and the other either convex or triangular. They appear in two types, the plain bar; called bar amulet, or with the upper face more or less resembling a sitting bird, with an expanded tail, and head with projecting eyes, called bird amulet. Both forms agree in having one conical perforation at each end passing from the flattened base obliquely upward and outward. Fig. 32 shows a beautiful bar amulet of banded slate from Bristol. Fig. 33 shows a bird amulet from Ohio to illustrate the type. Fig. 34 represents a bird amulet, the head broken off, made of soapstone, from Terryville. These objects are exceedingly rare in New England. Their use is unknown. The writer imagines them to have been connected with the operations of the shamans or priests called pow-wows. Fig. 35 and 36 por-

tray a very different form of ornament from Burlington. This handsome relic is a perfect specimen, and its perfection seems more wonderful when we consider that it was made with no other rule or square than the eye and hand of the artisan. It has two perforations passing up from the center of the central boat-shaped groove at such an angle that a cord passed through each suspends the object on a level. It is made of banded slate. These stones are called shuttles, but of their use we know nothing; they are quite rare. Never bored except in the center, their perforations are always cylindrical and very small for an Indian tool. Fig. 37 shows a singular and well polished object from Bristol of no apparent use. This may be a clay stone, but it has the greasy polish of long handling, which seems to cling to an Indian implement for ages in the earth.



PLUMMETS AND PAINT CUPS.

BANNER STONES.

The banner stones differ from other objects in this class in having one large perforation through the center. In this section all bores are round; west and south a few are found with oval perforations. Examinations of a number of large collections seem to prove to the writer that all symmetrical forms have round bores, while those with symmetrical wings have oval bores. The writer would be pleased to learn of exceptions to this statement for New England.



GORGETS AND PENDANTS.

These are among the choicest examples of prehistoric art. While mostly made of slate, many are found in very hard materials. Fig. 38 represents one from Columbia, Conn., worked from crystal. They seem to have been

blocked out and shaped before being bored, as is shown in fig. 39 r from Farmington. They are thought to have been badges of office or ceremonial flags, borne upon handles which were doubtless painted and gayly bedecked with colored feathers and carried in dances and processions. The finished specimens are always very highly polished and almost perfectly symmetrical. Fig. 40 r represents a fine "butterfly" banner from Bristol. In fig. 41 we illustrate an immense arrow-shaped stone found some twenty years ago in Southington. One face is of light gritty sandstone, the other of a smooth red shale almost slate. It is fully seventeen inches long, thirteen inches wide, and less than one inch thick. Its great size precludes any useful purpose. We must believe that some figure was painted on its smooth face, and that it was used as a banner stone. Yet it may have been a totem. When shown to Prof. Otis T. Mason, the curator of ethnology of the National Museum, he told the writer that he knew of but two such objects, both being in Washington. They were much smaller, and came from the Apache country.

It opens a curious conjecture what the occurrence in so widely separated districts of such singular stones may mean, more especially when we consider that the Tunxan and Apache Indians probably represent different phylogenetic stems.

THE RELIGIOUS IDEA AMONG THE ALGONKINS.

It is not the scope of this paper to discuss the moral and religious life of our Indians. But a better appreciation of certain objects may be obtained by a slight glimpse into the workings of the later Indian's mind. Dr. Daniel



AMULETS.

Britton¹ has published a learned book upon Indian myths and religious traditions. Cushing² is also publishing a similar attempt at describing the ancient Zunian system of religious ceremonials. These works give us the remaining opinions of the higher minds, among the Indians and their traditions. It seems hardly probable that the common people comprehended what glimpses of ethical or cosmic truths might underlie their myths or ceremonials. For instance, the great divinity among the Algonkin people was Michabo—the great white rabbit. This word was compounded from *michi* (great) and *wabos*, the little grey rabbit of our woods. Now the Algonkin root word for white was *wab*. Dialectic forms occur, as *waupan*, the morning; *waubon*, the east, the dawn. The name *michabo* probably was really the great white dawn, the creating light, the morning and sunlight, which was a common form of Nature

¹ Myths of the New World. Phil., 1896.

² Thirteenth Annual Report, Bureau of Ethnology, Washington.

God among many people. But the Indian, confused by the similarity of the root form of the words, degraded the conception to a big white rabbit and made this nonsensical being his god.³ Such misconceptions are not unknown in modern religious cults. Having no real monotheistic conceptions the Indian supplicated such local superstitions as his fancy feared or hoped to bribe. Brinton⁴ gives an Algonkin⁵ prayer overhead by the Jesuit Brebocuf, anterior to 1636: "Oki, thou who dwellest in this spot, I offer thee tobacco. Help us; save us from shipwrecks; defend us from our enemies; give us good trade; bring us back safe to the village." This contains no moral principle; recognizes no relation above that of barter.



AMULETES AND BANNER STONES.

The Indian gave tobacco in exchange for that which he thought that the invisible could yield to or deny him. And yet is not this even a higher standard than that of some of our modern sagamores of trade who seek to bribe the demiurge of legislation for power to prey upon their fellowmen? Those ceremonial relations that grew out of the etiquette of contact, or which were woven around the individual by tribal conservatism, modified by and intermingled with a belief in the incantations and conjurations of the Shamans, bounded the religious horizons of the common Indian. Incapable of comprehending the phenomena of nature, he lived in a superstitious fear of unseen influences and sought to propitiate or deceive the forces that he supposed were behind them. But it is nowhere shown that he worshipped devils, any more than that Saul worshipped a devil when he besought the witch at Endor. Yet, even if certain esoteric truths may have been conveyed along the centuries through the initiations of those secret societies which seem the common property of a certain stage of savagedom, they seemed to have exercised no ennobling power over the individual.* He was hopelessly entangled amid the meshes of an hundred ancient remembrances and customs whose beginnings and causations had

* Brinton, *Ibid.* p. 196.

³ *Ibid.* p. 339.

⁴ The historic Tuxans were of Algonkin stock.

⁵ The Shamans or Pow-wows were the priests among the Indians; also the jugglers, nature-doctors, rainmakers and witch-finders.

* Vide Churchill, *Pop. Scie. Mon.*, Dec., 1890, "The Duk Duk Ceremonies."

been lost in the mist of ages, but whose power to enthrall him grew ever stronger with the procession of years. We are irresistibly led to the conclusion that among the red men the religious idea had become completely submerged in the ceremonial. The spontaneity of the individual had been lost in a debasing web of ceremonial communism. Their myths indeed remained like those shining plants which science teaches us are dead and yet nightly parade the glittering but soulless shadows of once life-sustaining orbs. Communism invaded every walk of the Indian's life. Whatever he possessed, it forced him to share with others,[†] although among some tribes horses and probably arms and personal adornment belonged to individuals, male and female owning their own implements. The land, however, was held in common. When he died his chiefest possessions were commonly destroyed at his burial. His wife and children were usually left nothing. Religion demanded prolonged and shameful mourning among many tribes for the poor woman whose husband had departed for the happy hunting grounds. In every direction he seems to have been compassed about with customs that he dare not violate and, yet, which forbade the possibility of individual progress beyond fixed lines, hence everywhere we found the Indians a degenerating people. A civilization blasted in its generous youth by the deathly germ of socialism, its age ever "looking back-



FIGURE 41—1-5 nature.

ward" into the night of tradition, the future of the Indian had no hopes of ultimate amelioration. His highest efforts at civilization could not escape the ban of socialism. The priestly classes who ruled Mexico and Peru maintained the most elaborate forms of prohibitions and debasing paternalisms, ever the obverse sides of socialism.

All mankind, be it red, black or white, dreams of an Arcadia where labor is not needed and selfishness unknown. The modern followers of Balaam, cursing at present progress, point to this golden age in a communal past. But the finger of investigation, ever delving deeper into the mysteries of the ages, always finds the golden age of socialism receding yet deeper into the elusive

obscurity of the past. Along the centuries time has printed the immutable law of evolution. It is in the liberty to variation and the guaranteed integrity of the individual effort that progress plants her seeds. Whatever unduly restrains the individual under the bonds of a forced uniformity ultimately blights

[†] See Lucian Carr, *Antiquarian* for 1897, page 92.

the whole collection of individuals. Such Aryan people as cast off socialistic communism progressed. The Indian, retaining communism, sank ever deeper in its hopeless enmeshments.

An interesting treatise might be elaborated upon this subject, but to our present purpose it limits itself to the uses of tobacco, the occurrence of images and totemism. The manner in which the religious idea was undoubtedly connected with the ceremonial objects just described is at present too much involved in obscurity for any description. Regarding images Dr. Brinton says, "Idols of stone, wood or baked clay were found in every Indian tribe without exception so far as I know."* We must not conclude from this that idols were largely venerated among the half-nomadic Connecticut aborigines. And we should hesitate to believe that such images as have been found represented



any fixed attributes or definite divine qualities, as they seem to have done in Mexico. In the Western States very many curious pieces of pottery representing often old hunchbacked squaws are found among the mounds and called idol mugs. In the middle South, stone and clay images and heads occur. For the curious we insert a clay image, fig. 42, with the peculiar flat face seen upon the larger idols in stone, and a stone head, fig. 43, which we consider as very ancient, both from Nagooche, Ga., and never previously illustrated. The student will find a very ancient and probably pre-aztecian idol in the Bristol museum, found in Central America. The writer possesses a quartzite mealing stone, or round pestle from Farmington which has been elaborately worked into a perfect shape, whose upper face shows a bird plainly scratched out, but not suitable for photographing. We also show in fig. 44 a singular flat head exhumed on Union Hill, Bristol, some ten years ago. This is the only representation of a human head we have ever known from this valley, except some pipes, which are obviously intrusive and apparently of post-Columbian Cherokee manufacture.

* *Myths of the New World*, p. 343.

AN ANCIENT DEFENSIVE WORK ON LOPEZ ISLAND.

On a recent visit to Lopez Island, the second largest of the San Juan county group, in Puget Sound, I found the opportunity to briefly examine one of several rude military entrenchments found there, supposed to have been constructed by aborigines in prehistoric times. A bold headland, comprising several acres, juts out into the sea from the southwestern part of the island connected with the mainland by an isthmus of perhaps three hundred feet in width, and much lower than its general surface. The defensive work was done at this point by cutting a ditch across it, through the gravel and loose rock, from one side to the other. Where it commences at the shore line on the west side the bank is almost perpendicular, rising twenty feet or more above the highest tide level, and it terminates at the eastern side at the edge of the vertical wall of rock forming the base of the bluff. The ditch as now seen is from two to three feet in depth, with an average width at the top of six feet. The material excavated was piled up in an embankment on the outside from the bluff, contrary to modern ideas of defensive earthworks. At one point, I noticed in the course of this trench, the bedrock occurring near the surface obstructed their excavation; and here a mass of boulders were piled up on the line of the breastwork to compensate for want of depth of the ditch.

The oldest Indians living here when the whites first settled these islands knew nothing of the authors or purpose of this work. There are gnarled and stunted fir trees growing from the bottom of the ditch certainly a century old; and though this portion of the island has been devoted to grazing for more than the quarter of a century, and for that period has been continuously subjected to the tramping of innumerable horses, sheep and cattle, and exposed for ages to the destructive effects of storms and rains, this fortification would still at this day serve well to protect a line of sharpshooters or beleaguered riflemen. If planned for the defense of the outlying headland this work, from a military point of view, is exactly in the right place, as there probably is no other point on the island where so large a space could be as efficiently fortified with comparatively such a small expenditure of labor and at the same time retain so many advantages. The precipitous shore line all around renders the place inaccessible from the water, and this entrenchment, from precipice to precipice, must have made it secure from attack landward by any mode of warfare then known.

Within the enclosure, a short distance from the eastern end of the ditch, the face of the cliff is indented by a deep, narrow ravine running back into the rocks, forming a miniature canyon with abrupt, steep sides. Across the mouth of this is seen the vestiges of a stone wall that barred passage into it from the sea. There is at present no water in this ravine; nor indeed is there now any fresh water to be found anywhere on the little promontory, but probably was in ancient times. Or, the mouth of the hollow may have been closed so as to convert it into a reservoir for the storage of water collected in it during the rainy season. If utilized when dry as it now is, with little labor a covering of brush or other material could easily have been thrown over it from side to side making it a safe shelter from the cold and winds for a hundred men. I found no traces of any graves or mounds; but outside the entrenchment, and not far from it, is an oblong heap of stones marking the resting place of an Indian; and on a hill a few hundred yards farther north a number of the same oblong rock piles dotting the surface denote a primitive cemetery. It may be that these rude sepulchres tell a story of siege, battle, repulse and defeat; and that the lone grave near the embankment encloses the remains of a valiant leader who was buried where he fell in the last hopeless assault.

It has been conjectured by some that this defensive work may have been made by white men long ago; the crew of some vessel, perhaps, wrecked on this

rock-bound coast, who reached the land with their arms, and pressed by the native savages fortified their position here and successfully repelled their enemies. For several reasons this opinion does not seem plausible. The early native inhabitants of these islands, it is known, were peacefully disposed and not warlike and would not have molested strangers of a superior race. If such a conflict had transpired the Indians would very probably have retained a reliable tradition of it; and, finally, it is not probable that any civilized people would have thrown up a defensive work constructed with the ditch on the inside of the embankment. There are other similar works on this island, and I hope this brief paper may have the effect of stimulating their investigation and lead to the discovery of their builders.

Friday Harbor, Washington.

W. H. THACKER.



FIG. 1.

SOME OBJECTS FROM THE SALADO VALLEY, ARIZONA.

The Salt valley presents an interesting field to the archaeologist, yet one which is to a great extent puzzling, and inexplicable. I do not know of a region from which can be gathered so many and diversified types—often types which might be considered by hasty observers as fraudulent.

There are more than thirty, and perhaps fifty, adobe ruins within twenty miles of Phoenix. These chiefly lie along the Salt river. Towards the west and south there are a number of groups and small scattered ruins, but the important settlements appear to have been towards the east, both north and south of Tempe, and north of Mesa. Their sizes vary from structures of two or three rooms to one which may have contained two or three hundred apartments. The largest adobe pueblo is one mile north of Mesa, and lies upon an elevated platform five or six feet high. It was not surveyed by our party, and our hasty tape line measurements may be inaccurate, but we take it to be seven hundred feet long, five hundred and fifty feet wide, and thirty feet high. It was estimated that an exploration would cost at least \$5000. The mound lies upon a forty-foot bank overlooking the Salt valley. There are twenty or thirty smaller buildings, refuse heaps,

mounds, etc., surrounding this main structure. There is an estufa of adobe, nearly two hundred feet in diameter, to the northeast of the main building. Perhaps the entire group covers fifty acres. The ground is simply strewn with pottery fragments, pieces of ocean shells, fragments of bracelets, broken mano stones, beads, mortars, hammer stones, etc. It would be an ideal field for the collector, but only he who has unlimited funds should attempt an exploration. The same may be said of other groups in the Salado valley, and Mr. Cushing, who explored the famous Los Muertos group nine miles south of Tempe, spent a very large sum in carefully exposing all the rooms of the main building. The spectacle must have been one of intense interest, for I am told that as each room was carefully cleaned, the objects, skeletons, graves, fire places, etc., were all placed in original position and photographs taken of each apartment and its contents.

The groups appeared to have been constructed on one general plan. There is usually a central temple which must have originally stood anywhere from twenty-five to forty feet in height (and in case of the large ruin north of Mesa, say fifty feet). In the smaller rooms of this temple the priests lived, according to Mr. Cushing's opinion. Near the temple is another large structure devoted almost entirely to living rooms, and in these lived people who may be said to have belonged to the aristocracy or at least to the various orders and high classes. Refuse heaps, camp sites, numbers of three to ten-roomed dwellings may have been occupied by the common folk. Life appears to have been entirely communal, and as to orders, observances and religious beliefs, it is not necessary to enter into a discussion here, that ground having been covered by those who have made a special study of prehistoric times in the southwest. The objects found in and about these ruins, as will be seen by my illustrations, are exceedingly unique. Some of them approach the types well described by Mr. Rust, and having been found on the Pacific coast. But there are local differences. There is some similarity between many of the relics from here and those of the Cliff Dwellers' region to the north. But the types of Northern Mexico and those of this region seem even more nearly related. I am told that as one journeys southward the connection becomes still more marked. Undoubtedly the Salt valley from its convenient location marked the contact between Cliff, Coast and Mexican tribes, and if such be the case it is not surprising to find the arts modified by both northern and southern cultures. The llama, parrot, monkey, etc., have been found in clay and stone; also the armadillo. Little idol heads and peculiar heavy clay cups strangely like those of Aztec make have been found in the ruins. The architecture appears to be rudely patterned after southern models. All considered, the evidence seems to point to the Phoenix region as a "middle ground" between the Cliff, Ocean and Aztec tribes. Doctor Cyrus Thomas in his recent excellent work, "An Introduction to the Study of American Archaeology," is of this opinion, and cites the great authority, Bandillier in proof of his position. I think that Mr. Cushing takes the same ground.

Evidences of commerce and trade of these people are extensive. They brought several varieties of shells from the Pacific coast, and worked them into bracelets, rings, pendants, etc. Whether these people went to the coast themselves, or whether the shells passed through the hands of intermediate peoples is immaterial. They must cross portions of Arizona and California deserts to reach the coast—long journeys full of hardships. From the north at least seventy-five or one hundred miles distant, were brought fossil shells, obsidian and various volcanic and semi-precious stones. Turquoise were also used in quantities, although none can be found nearer than sixty miles north of Phoenix. Onyx was also employed, as were malpi and various lavas.

The contrast between rude and fine things in the Salado Valley is marked. In onyx birds, fish or other life are represented by most exquisite carvings. Shell

frogs, coyotes, bears, birds, etc., have been found by Mr. Cushing, Dr. Griffith, Dr. Fewkes and others. Nothing can exceed the beauty and delicacy of the workmanship in these shell effigies.

Axes are highly polished and the average type higher than that of the east. The stone effigies of owls, birds, animals, turtles and human beings range from exceedingly rough and ill-executed ones to those fairly well made. Soft lime rocks are often selected and, hence, some of the effigies appear to be modern.

The mortars and grinding stones are very like both those of the coast and of the Cliff Dweller region.

In figure I a skeleton is shown. By the head is a small olla filled with earth; about one-third of an olla lies near the knees. It was filled with charcoal and ashes. The skeleton lay in a grave made of adobe, two feet in width, six feet long and five feet below the surface of the Kalfus ruin. The Kalfus group contains a large temple mound, and a living house or pueblo, besides numerous small structures. The pueblo was to the north of the temple, and may have originally

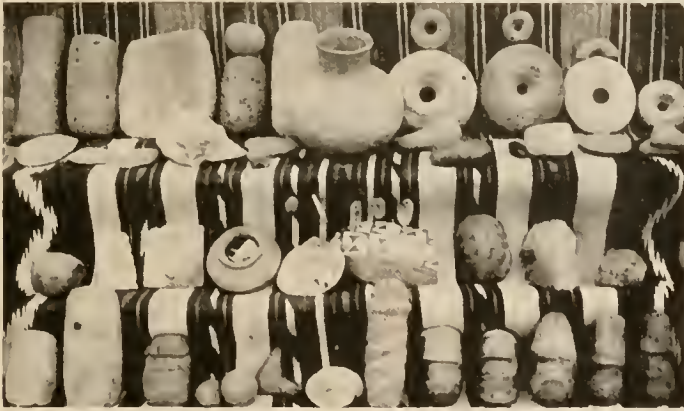


FIG. II.

contained thirty or forty rooms. Yet the structure appears to have been occupied at various times, and one room had been built above another without regard to the plan of the structure. As this ruin was only thirteen feet high, our explorations were somewhat extensive, but it was impossible to draw an intelligent plan of the structure. A number of relics were found fifteen or eighteen inches below the surface, upon a hard burnt floor, which extended from forty to sixty feet. This floor appears to have been made by a later tribe. There were no walls or rooms erected on the floor, and from all appearances, the people must have lived in huts of perishable material, simply using the old elevation as a house site.

Figure II presents various objects from the region. In the upper row is a typical olla, undecorated, from one of the ruins. Near the center is a small vessel of a common type. The objects to the left of the pot are grinding or mano stones. Those to the right are perforated disks or stone wheels, so numerous in the Salt valley, and which range from two to ten inches in diameter. These are also found on the Pacific coast, and have been variously classed as club heads, game stones, etc. Their purpose is open to conjecture. In the lower row are several axes to the right, and in the center is a peculiar spiral-grooved stone. It may or may not have represented Phallic worship. It is one of those strange things from the southwest which have been previously classed as "carved or grooved stones with tracings or designs." Several such tracings are upon the cañon sides seven miles south of Phoenix.



FIG. III.

Fig. III shows typical axes at the top. These are of hard stone materials, usually granites. They are somewhat different in shape from eastern axes, and more like those of the Cliff Dweller region. Just below the axes are 2 rings of circular, perforated stones, 1 stone cup and 2 stones with double depression. These latter can scarcely be classed as cup stones, or as small double mortars. Paint may have been ground in them. Like many other things, they are open to conjecture and speculation.

On the third shelf are other and stranger objects. The one near the center, the upright one decorated with lines may have some ceremonial significance; I do not know what it is, nor can I name the object to the right, which appears to be a cup with a short blunt handle. Who can offer a suggestion for the perforated

stone (the third from the end) toward the left of the upright decorated specimen? The lines on the decorated specimen are apparently fresh, yet there is every evidence that it is old. It is one of the puzzling works of ancient man, and if like specimens were thrown out of the southwest collections, we would soon have nothing left but stone axes, grinding stones and pottery. These central objects should be studied and discussed among archaeologists, for I am convinced that they will go far towards settling many southwest problems.

On the lower shelf are two large stones, broad at the bottom and narrow at the top. The upper part readily fits one's hand, and they can be used for smoothing and preparing clay for pottery making, or in rubbing hides or for other things, perhaps.

There do not remain many traces of textile fabric or mattings or baskets, etc., in the ruins. While the climate is dryer than that of the northern country, these have scarcely been protected as have those of equally perishable material, where placed in caves or sealed rooms in the cliffs. Wooden paddles and handles, etc., are occasionally found. The skeletons are usually in small pyral mounds, surrounding large ruins. Cremation was practiced, and the charred bones put in large ollas and buried. More important personages are found in the adobe graves, either in the sides or floors of rooms of pueblos.

The southwest field is exceedingly interesting and attractive and could be studied with profit by most collectors. The winter is delightful, the thermometer seldom dropping below seventy during the middle of the day, and usually ranging from thirty-five to fifty at night. I would advise those who can, to spend a winter in the Salado valley, and to make a study of these peculiar types, especially effigies, shell work, grooved stones, etc. "By keeping at it," one can obtain a fine collection, both from excavations and by purchase from the Indians, ranchmen and Mexicans.

WARREN K. MOOREHEAD.

CORRESPONDENCE.

Editor American Archaeologist:

I notice in recent numbers of your magazine, communications on the different methods among our American Indians of disposing of their dead; but I see no account of one method I have some knowledge of, and offer the following as information, if such information has not already been given to the public: Some of the Northwestern tribes did formerly deposit the bodies of their dead in the branches of trees. When crossing the plains in 1849, our party saw a lone cedar tree standing a short distance south of our road, and some of us went out to it, as we saw some object resting on its low branches about ten or twelve feet from the ground.

We found it to be the remains of an Indian (or what appeared to be such) in an advanced stage of decomposition. It was wrapped in a red blanket, and supported by the branches of the tree, with sticks laid across from one limb to another, over which was fastened or spread a buffalo robe. I have conversed within a few days with two old gentlemen of this town, who were of the party. Their memory as to where we were, like my own, is not clear. One thinks we were on North Platte; the recollection of the other is that we were on Sweet Water. My own memory coincides with the former, and I think it was the country of the Pawnee Indians we were passing through. The names of the two old gentlemen I refer to as my companions enroute, are P. C. Tiffany, Esq., and James Hart, Esq., both still living in Mt. Pleasant.

Some of the tribes in Oregon, in the long past, disposed of their dead in this same manner—I am not sure, but I think the Yack-a-mas (I may not spell the name right.) I am sure any of the Oregon settlers of 1847-8-9 or '50 can be corresponded with, more exact information may be obtained. According to my information, there was a cemetery of this kind of considerable dimensions. When the country became thickly peopled by whites, the unsightly and odoriferous "city of the dead" was, of course, removed. I think the process of spoliation was going on at the time the information of this cemetery was given to me.

The body I saw on the plains was probably that of an Indian who died in transit, as there was no village near, and his companions took the most convenient method of disposing of his remains. If this matter is already well-known to ethnologists, you will, of course, not publish this. If not well-known, investigation among old Oregon settlers before it is too late may be crowned with success quite interesting. F. C. PORTER.

Mt. Pleasant, Iowa.

To The Archaeologist:

I send you by today's mail a small box of flint implements I have selected from my collection for your opinion as to their uses. They have evidently been used as tools, and not as weapons. By examining them carefully you will notice that they are more or less polished by long continued use. No. 1, worn at the point, seems to have done service as a drill, perhaps in wood; and No. 4 shows signs of the same use, though it may have been employed in drilling stone, as the polish is more on its sides than on the end. In No. 7 we can see that the point and edges have been brought to their present form by rubbing on harder stone. No. 2 is considerably worn and must have been in use as a reamer. No. 3 looks like an arrow point, but was probably put to some other use besides; and also Nos. 5 and 6 the same. I had always been under the impression that implements of this class were invariably used as weapons for killing game; but I find several in my collection, like these, that were undoubtedly used as tools of different kinds. I would like to have your opinion about them; and perhaps some of your readers may be interested in this subject sufficiently to give us their views also.

Dryden, Va.

C. H. FLANARY.

[The flint implements sent us for inspection by Mr. Flanary seem to all have been originally intended for arrow points, and were probably so used until diverted to other purposes. Many flint implements, with notched bases to facilitate their attachment in shafts or handles, were obviously designed for tools and never used as weapons; such, for instance, as some of the drills, the crescent-edged concavo-convex scrapers, etc. And others again were no doubt, made for weapons for war or the chase and afterward modified for domestic or mechanical uses. Of this latter class are these received of Mr. Flanary, which, as he states, bear the plain marks of wear and service. It is well demonstrated that when the points of flint arrow and spear heads were broken off the implements were retrimmed to a point again; but when this process had been repeated until the point became too obtuse for penetration, the flint was still utilized, but for other and different purposes.—Editor.]

To the Editor:

A RECENT MOUND DISCOVERY BY J. O. SCOTFORD AND OTHERS.

Throughout Montcalm, Isabella and Mecosta counties, in the State of Michigan, my digging of mounds began in 1891; and the first discovery I made was when digging

postholes on the farm of Whitney and Reinich, near Wyman. Then I opened a mound there and discovered the relics of a prehistoric race who inhabited this country centuries before its discovery by Columbus, and were a partially civilized people who were somewhat educated, and lived in buildings represented by the pictures upon the caskets and tablets that were found in the mound. There were sixty-seven different characters in their alphabet.

Description of mound: September 5th, 1897, I opened a large mound forty by sixty feet at the base and eleven feet high. There were six skeletons in the mound that were buried in a trench ten or eleven inches deep, placed under a roofing of clay about three inches thick, extending from the edges of the mound to its center. This clay covering had a basin-shaped surface, filled with charcoal and ashes, in which were heaped many objects, such as a casket, three tablets, four pipes, three urns, two vases and a bowl. The casket contained a cup, in which were five pieces of copper coin and nine pieces of type. These were on the altar-shaped structure of clay, with some pieces of copper plating and fragments of broken pottery, some slate stone ornaments and meteoric iron, etc.

Witnesses of the discovery of these relics: H. J. Rich, David Ansbaugh, James Walker and wife, Henry Stevens, Wyman, Mich., and many others.

[Accompanying this paper was a page of drawings representing an ancient coin, obverse and reverse; a tablet divided into unequal sections by lines, in one section of which is represented an Egyptian-like building after the style of the old Tombs prison in New York; and the other sections are filled with odd figures and characters, some of which resemble Hebrew letters. Then follows a drawing of the casket, a box-shaped affair, with Hebrew-like letters on its sides; and on its top, side by side, are four winged and crested sphynxes with human faces. These objects seem to have been copied from cuts in some work on Oriental antiquities. Next is a pipe of ordinary form, highly ornamented with dots and lines and zigzag tracings; followed by a well-drawn fragment of common pottery; and, lastly, a fine battle axe of the old Norman pattern, purporting to be made of "flinty slate," the cutting edge measuring eleven inches. The following is Mr. Scotford's explanation of his drawings:

"No. 1 is a copper coin showing 2 sides.

"No. 2 is the tablet $13\frac{1}{2}$ by $22\frac{1}{4}$ inches, which is covered with pictures.

"No. 3 represents the great casket, which is $13\frac{1}{2}$ inches long, $5\frac{1}{2}$ inches wide and $12\frac{1}{2}$ high, which contained 46 pieces of copper coin, 2 graphite slate rings, 5 pieces of stone type and 1 copper tablet.

"No. 4, a pipe of ordinary size, with hieroglyphics upon the bowl.

"No. 5, fragment of pottery.

"No. 6, the battle axe, which is 11 inches by $14\frac{1}{2}$, made of hard, flinty slate."

We have written to Mr. Scotford urging him to send us further details of his wonderful discovery for publication, with photographs of the relics—if they are genuine—and to draw on us for payment of all costs and expenses; but so far we have heard nothing further from him.

It was perhaps this amazing find Prof. Holmes referred to in his communication published in our June number (page 153), as follows: "Speaking of fraudulent work, I think the most flagrant case is that developed in the western part of the lower peninsula of Michigan. It is a most persistent and unscrupulous attempt to mislead the country into believing that traces of Oriental culture are found there." This must be the accepted view of it until Mr. Scotford consents to a thorough inspection of his pretended antiquities, with all attending circumstances, by competent scientific men.—Editor.]

Editor of The Archaeologist:

The timely and aggressive agitation now being waged in reference to counterfeiting Indian relics, by your popular magazine, seems to promise valuable results. I desire to commend all the suggestions of your correspondents, except one, namely, the keeping of a black list for "private circulation." In my opinion, such a method is fraught with possibilities of grave wrong to innocent and unoffending parties.

The most skilled archaeologist is not infallible; and what is more, there are some wholly incompetent persons who do not scruple to "pass" on relics not their own. Having exploited their neighborhood and assembled a collection slightly better than any other in the community, straightway they become possessed of a strong itching to be regarded as "authority." "I am very skeptical," they say to the fellow-collector who has just taken with his own hands a fine relic from the mound where he has toiled for days; "send it to me and I will tell you if it be genuine or not." No wonder that that misused and overburdened word "expert" is falling into merited contempt.

Now, the simple truth is that in all the United States there is not, perhaps, a single archaeologist competent to pass infallible judgment upon every relic from every possible locality. A consensus of expert opinion is frequently necessary to arrive at the truth.

The difficulty seems to be, not that counterfeits will not be detected, but that genuine relics affected by local conditions which remove the usual earmarks of genuineness, will be classed as frands, to the permanent loss of science. Prof. H. C. Mercer's latest allusion to the Lenape Stone is to the point. And very pertinent indeed is Mr. Moorehead's note calling attention to the conditions in Arizona operating to modify the usual laws of determination. Similar conditions obtain in much of the great west, a field as yet imperfectly studied by thoroughly equipped archaeologists.

California presents some difficult conditions. The aborigines here were divided into innumerable bands having little intercourse with each other and speaking different dialects. Each tribe seems to have been a law unto itself, following its own bent. "Strange, unheard-of types abound" here also in astonishing and puzzling variety. Thus, the climate, the customs of the particular tribe which made the relic and even the very soil in which it was buried become factors which must be reckoned with in determining its genuineness. A partial instance:—the aborigines of the large interior valleys having their village sites along the Sacramento, San Joaquin, Stanislaus and Mokelumne rivers, chipped obsidian to perfection. Their arrows and knives are the most beautifully and delicately wrought I have ever seen—their spear and lance heads fearfully and wonderfully made. But rarely indeed was it that these splendid weapons were put to use other than as ornaments and articles of ceremonious, and showy equipage; the trap, the snare, the club, the sling and the modern arrow and spear hardened by fire, sufficed them for the most part. Their stone tipped weapons were used only in emergencies and constantly guarded with extreme care. Consequently at the decease of the owner, they were buried, undulled, unabraded and literally untarnished by use. Now, notice that in many instances this implement unaffected since its making by any service, is buried in earth subject to annual overflow and impregnated with a strong alkali. The chemical effect of the latter is to cleanse any stains and impurities from the obsidian and to preserve indefinitely, if it does not actually heighten, its appearance of shining newness. From mounds which refused to yield up the slightest token of white contact, and whose relics generally indicated great antiquity, the writer has taken obsidians showing every appearance of having been made within the week. One not cognizant of these peculiar local conditions would find it "easy, conservative and safe to rule them out on general principles."

These are some of the reasons why I believe it possible that mistakes might be made by the gentlemen assuming, or being elected to, the responsible office of "passing on relics." To admit the possibility of error is to admit that injury might be done someone, if a secret black list is kept for private circulation.

There is another reason also, Mr. Editor, why I should regret a secret black list: Unfortunately, the makers and sellers of counterfeit relics have no corner on scoundrelism. "Spanish honor" is not limited to the Spaniards. Necessarily the Bureau of Protection would deal with many not personally known to it, or only known "by reputation"—a quantity difficult to determine at long range. The devil is a very respectable person and wears good clothes. Carefully as the Bureau certainly would guard it, the private list would be abused sooner or later for sinister ends. Therefore I hope it may not be adopted. Let no man be struck by a hidden hand. Let charges involving character be made in public only. Let the accused be furnished with a copy of the indictment and given an opportunity to defend his name. He could not deceive the public, and in due time, if guilty, he should be placed in the stereotyped list of rascals, which we hope The Archaeologist will publish in the future.

H. C. MEREDITH.

Stockton, California.

[We will inform our esteemed correspondent that the proposed black list, against which he so earnestly protests, will not be controlled by the editor or publishers of The Archaeologist, but will be managed by one of the first institutions of our country. And that it is not adopted merely to "pass" on relics, but to collect evidence of guilt and guard the public against the scoundrels who are proven to be counterfeiters of American antiquities, and the scoundrels who act as their agents in disposing of their spurious products to the public. We will assure him that no charge has yet been made—and that none will be made—against this class of petty criminals that cannot be amply supported by the affidavits of respectable and responsible persons. And that no one will be stabbed in the dark; and that all the indictments will in time be made public, or placed where they and the testimony upon which they rest can be freely inspected at all times. Notwithstanding the special pleading of our reverend friend—which we are not at present disposed to discuss—we know that fraudulent obsidian objects represented as prehistoric Indian relics are now extensively manufactured in California, Arizona and New Mexico; that imitation "Oregon bird points" are manufactured in Idaho, Washington and in several other states; and that counterfeiting of various types of relics is openly carried on at Santa Barbara, Cal.; Tempe, Arizona; Galt, Ontario; Flag Pond, Va.; Jonca, Mo., and at many other localities, of which full details are being secured; and that

throughout the country are dealers in relics and curios who gain the confidence of the public by advertising in reputable publications and make a business of buying the output of these counterfeiters, with which they swindle their patrons by representing the frauds to be genuine. This species of deception is worse than plain stealing or burglary, which involve no violation of confidence. This heinous traffic has been going on and increasing until it has become an intolerable evil, which no laws have yet been enacted to remedy. Merchants have their Bradstreet and other secret agencies to protect them from insolvent and dishonest customers. Collectors and archaeologists are forced to adopt the only available expedient to protect themselves from swindlers by establishing their Bradstreet Black List and placing its well-attested facts at the disposal of the public.—Editor.]

Editor American Archaeologist:

In your May number you exposed the "flint crook," a unique type with which the country is now flooded.

The gentleman who seems to be able to furnish any quantity of these "crooks" is G. W. Robinette, of Flag Pond, Va.

Some time ago a dealer in the west shipped me over a dozen of these "crooks" and stated that he had at least twenty on hand. He said he got them mostly from Robinette.

A few days ago Mr. Chapman, of Philadelphia, a dealer, called at my house and stated that he would like to sell me some rare Indian relics. Among these, he said, were one dozen flint crooks, the property of a Southern collector, who had parted with them with reluctance, as in doing so he had depleted his own collection. Mr. Chapman said, in addition, that the Southern collector had given him to understand that he (the collector) was selling out his duplicates and dealt only with Mr. Chapman. Mr. Chapman, who seems to be a victim in the matter, added that the name of the Southern collector was G. W. Robinette.

In the June number of *The Archaeologist*, page 163, you give the name and address of another person who is supplying Robinette's "crooks," so it would seem that Mr. Robinette can turn out an unlimited supply.

I have submitted to the National Museum ten of these fraudulent "crooks." The experts of the museum are familiar with their character.

The *Archaeologist* is doing a good work in exposing these fraudulent productions.

While it may not be a felony to make these things, it certainly is a prison offense to sell them as genuine.

CLARENCE B. MOORE.

Philadelphia, Pa.

American Archaeologist:

Oakdale, in Nebraska, is one of the principal towns in Antelope county; and it is located in the beautiful valley of the Elkhorn river, whose waters have been kissed by the noonday sun and have hatched into life many millions of the finny tribe that love to sport in its crystal waters, which have made it a desirable place for prehistoric man to locate his habitations, because the supply is great of fish and game of various kinds, from the tiniest quail to the huge elk and buffalo. And though ages have rapidly chased each other through the many geological changes down to the present time, we still can find some of the remains of the elk and the buffalo where men of the ages past have feasted on the flesh of these animals. Near these feasting places I have found hundreds of their flint tools, such as knives, scrapers, arrows, drills, pipes, and in two instances I have found two fine stone axes and two nicely-shaped stone mauls. I also have picked up many fine specimens of pottery, all of which may be seen in my collection.

And now we can see that the tree of life has been planted on either bank of this crystal stream for many ages, and that it has shed its blossoms in the springtime and its leaves in the autumn to make way for higher and more intelligent forms, which we have today in a civilization that is second to no other in the world. But the tools of flint and stone have, like their makers, passed into history; but thousands of specimens are kept in private collections, here and there, by the archaeology-loving people who are lucky enough to secure such a collection. But, before I go farther, I wish to say that as Charles Stringfellow was listing in corn on his farm near Oakdale, the lister threw out of a cache fifty-two flint tools, viz: two fine hoes and the balance consisted of scrapers and knives, all being made of brown jasper. I was in the same field, at the same time, and Mr. S. told me of his find and that he considered them of no value, and with his consent I secured what I call a remarkable archaeological find and have the same in my collection. To the editor of *The Archaeologist*, in answer to a letter, I consider it a mistaken idea that the prehistoric man had never set his foot on the soil of Nebraska. For, in evidence of this fact, I have already secured more than three hundred of the finest specimens of surface finds, and I have already visited three ancient village sites, with a positive knowledge of three others that I have not yet seen, all situated within six miles of Oakdale. And I have been informed by a resident of Genoa, situated thirty-five

miles south of here, that there are near that town three large mounds that are unexplored and supposed to contain many valuable specimens of the prehistoric man, since so many specimens of pottery, flint and stone have been secured. Is not this evidence enough that the stone age man has been here and in all probability lived a peaceful, happy life?

A. L. HOPKINS.

Oakdale, Neb.



Editor American Archaeologist:

In your valuable magazine for May, 1898, as well as in other numbers, you speak of counterfeiting Indian relics as a business being carried on by different persons throughout the United States, and name some of the firms so employed. Last February a man, who sells curios in the upper end of our county, called upon me with several relics, and among them the two which I have outlined and numbered one and two (1 and 2). Being anything but an expert in this line, I was taken with the beauty of the stones and their peculiar shapes. We struck a bargain, I giving him some odds and ends in exchange. I had never seen anything like them, and not finding any data concerning these shapes, began to grow suspicious, and on seeing your editorial in the May number (page 131), I wrote the gentleman I believed them to be counterfeit. He was as much surprised as I had been, and begged me to believe him that he was not guilty of trying to defraud me; and I don't think that that was his intention, but do think that he was "taken in" the same as I had been, and so I wrote him to be easy on that score and to send me the address of the party from whom he had purchased this precious pair of relics. No. 1 is of a reddish color and is said to have come from Michigan. No. 2 is cream-colored and is said to have come from Democrat, Lee county, Va. Both are of a flinty nature and were purchased "from Mrs. J. N. Robinette, Collector of Indian Relics, Shells, Curios, Etc., Democrat, Lee Co., Va."

I write to thank you for your timely editorial, which I believe will do much towards stopping this nefarious business.

WILLIAM A. KELKER.

Harrisburgh, Pa.

Editor American Archaeologist:

Dear Sir—Your issue for June received. The manner in which you agitate the subject of fraudulent relics will certainly bear fruit. I was greatly pleased to hear from Prof. Holmes and others, and hope some definite line of action will be found in the near future which will check this nefarious business. Mr. H. P. Hamilton, of Two Rivers, Wisconsin, begs to differ with me in regard to my statement in which I point out the difficulty of detecting fraudulent copper implements. My experience in collecting and consequent study of prehistoric implements and weapons during the past fifty years, with my outings spent in the field, enables me to emphasize my former statement, that it would be well for collectors, as well as the general public, to make a critical examination of all relics, but especially those made of copper or other metallic substance. While the history of a specimen is evidence of its genuineness, yet we know that the history can be manufactured as readily as the implement; consequently in the purchase of copper relics evidence of a positive character should be demanded. A few years ago a mound was opened on Peters' Creek, a tributary of the Monongahela, in Washington county, Pa., and among many relics of stone, flint and pottery exhumed were two plates of copper about nine inches wide by fourteen inches long, and less than one-eighth of an inch thick; also the under jaw of a bear, having the tusks encased in sockets of copper. The laminations upon the plates indicated that they had been beaten out with a stone hammer upon a stone anvil. From personal knowledge of the opening of this mound I know that these plates and other relics are genuine, and yet I am just as positive that these plates could be, and are being, counterfeited. The laminations are easily produced. Wrappings of some coarse fabric dipped in acid produce the desired markings. Age is produced by corrosion, and you have your relic. I have in my collection an iron tomahawk of English manufacture bearing its maker's stamp. These were brought to Pittsburgh by Indian traders during the occupancy of Fort Duquesne by the French. They are well-known to all collectors, having the bowl of a pipe forged upon the head and the handle perforated for the stem. I need not add that these iron tomahawks are successfully and numerously imitated, except the English maker's stamp, the absence of which is easily accounted for by erosion consequent from lying in the ground or in the bed of some creek, from which it is said to be exhumed. I do not doubt for a moment Mr. Hamilton's ability to produce satisfactory evidence that the several hundred copper implements in his collection are genuine, yet the fact of such a large number being found in one locality does not furnish absolute confidence in regard to their origin.

Bellevue, Pa.

Respectfully, THOMAS HARPER.

EDITOR'S DEPARTMENT.

DR. J. F. SNYDER, EDITOR, - - - - - Virginia, Ills.
 PROF. A. F. BERLIN, ASSOCIATE, - - - - - Allentown, Pa.

All communications for the Editor must be addressed to Dr. J. F. Snyder, Virginia, Cass Co., Ills.

In his admirable book, recently published, entitled "Introduction to the Study of North American Archaeology, Prof. Cyrus Thomas adopts the view entertained by many ethnologists that the dispersion of Indian tribes on this continent began at a point west of Hudson's Bay; and from thence the migrating tribes proceeding south divided in two branches; one continued south and east, gradually overspread the Atlantic region down to Florida and the gulf; the other traveling southwest and following down the western chain of mountains, with offshoots crossing over to the Pacific seaboard, finally peopled Arizona, Mexico and Central America. The question naturally suggested in accepting this hypothesis is, how came the early Indian hosts on the frozen western slopes of Hudson's Bay? While ignoring any discussion of the Indians' origin in North America the author very pointedly asserts his belief that they reached the valleys of the Churchill and Nelson rivers—that frigid hive from whence they swarmed—from the northwest; in other words, from northeastern Asia. If this supposition is correct it is as difficult to understand why the primitive Asiatic immigrants selected such a bleak, inhospitable and barren region for their future home, as it is to trace the route by which they reached it. After having crossed Behring Strait it is hardly probable they would have continued traveling directly eastward, along the frozen and sterile shores of the Arctic ocean; or across the snow-clad mountains of Alaska, to the mouth of the McKenzie river, and then up that stream to its sources, in preference to the more southern route along the coast having a climate tempered and made more genial by the reflex current of the Japanese Kuro Shirow, or Gulf stream, and where food abounded, until they arrived at the mouth of the Columbia river before beginning to scatter over the continent. We are not yet quite certain that the Indian was not created or evolved here; but if he is an exotic—as is generally believed—the manner and time of his introduction into America is still, and may always remain, a profound and insoluble mystery.

The only aids we have in our attempts to unravel the centuries of past history of this unlettered people are the monuments they erected and remains of their domestic arts, together with the more feeble and unreliable helps of traditions and linguistic affinities preserved by their descendents of our historic era. Indian traditions, transmitted orally from generation to generation, and often embellished with myths and mythological fables, are usually confused, unintelligible and valueless. Modern linguistic evidence cannot be relied on as a key to the identity of tribes long since vanished, who left no written record and whose history when living was beyond doubt a continued succession of roving changes of locality, tribal intermixtures and divergencies. Prof. Thomas' book is a fair digest of all accessible sources of knowledge relating to early America up to date. Guided by his many years of study and observation while in active work for the U. S. Bureau of Ethnology, he has thoroughly sifted all that class of literature and given us the best deductions of the ablest minds including his own. But, after all, the early movements and many changes of prehistoric American peoples, their local developments of culture and decadence; their migrations and settlements and social organizations yet remain a tangled and inexplicable riddle.

Our author, who has heretofore gained some distinction as a theorist, and who is as far advanced as any scientist of the day in the study and interpretation

of Maya hieroglyphics, attempts to trace—by traditions, history, analogies of architecture, etc.,—the descent of the people who erected the great stone edifices of Central America and southern Mexico, from those farther north who built the huge mud houses, known as the Casas Grandes, in the state of Chihuahua, and on the Gila in Arizona. This theory would appear as plausible as any that can be constructed with the meagre data at hand but for the one factor, time. The evolution of art and incipient civilization of Central America from a northern Pueblo source demands a great period of time; for such development of migrating savages, whose probable tendency to sedentary life was no doubt often interrupted by offensive or defensive wars, must necessarily have been very slow. The chain of progressive improvement from the Gila to Copan has so many links missing that it can only be followed by the aid of many extraneous conditions. And it is not certain that the Pueblo ruins of the north can justly claim higher antiquity than the elaborately sculptured structures of the south—it may be are not as old. However, there is a vast territory studded with remains of ancient populations yet to be explored, which in the future may reveal evidences of a character that will compel radical revision of present views, and explain mysteries now seemingly impenetrable. In the meantime—until the discovery of an American Rosetta stone—the hope of science for the unlocking of America's perplexing archaeological secrets must rest on the well-directed, intelligent labors of such students as Prof. Thomas.

Of the many counterfeiters of Indian relics who are now swindling the public, the worst fraud we have yet heard of is one E. W. Anderson, of Summitsville, Tennessee. He is even worse than Levering, of Jonca, Mo.,—if such is possible—and makes the Robinettes respectable by comparison. Not long since a collector in the state of New York saw his advertisement proposing an exchange of specimens, and sent him a lot of northern relics valued at about twelve dollars. In due time Anderson forwarded a package, on which the collector paid two dollars express charges, containing a queer mess of trash of Anderson's own make. The most conspicuous objects that met the New Yorker's astonished gaze were two "genuine Indian pipes" newly made of clay, painted blue with black stripes, and the paint not yet quite dry; and a dish of the same material and ornamentation represented to be a piece of mound pottery. With the New York gentleman this was a plain case of misplaced confidence that ordinary business prudence would have averted. But the person who will buy the bungling frauds turned out by such unscrupulous humbugs as Anderson and Levering, after having inspected the objects well, deserves to be cheated and is entitled to no sympathy.

There is also one Cudney, of Galt, Ontario, in Canada, who manufactures pipes, slate gorgets, banner stones, etc., that are not quite such bare-faced botches as Levering's or Anderson's; but are such obvious frauds as to be readily detected by anyone familiar with genuine relics. These bogus products of Cudney's industry are represented to be art remains of the Neutral Indians, the earliest historical aborigines of western Ontario. Let collectors beware of these wretched cheats, and also of dealers who offer them for sale.

Some time ago we wrote to several of the most prominent dealers in Indian relics throughout the country asking their advice as to the best and most practicable means to be adopted to eliminate from the market all imitations, counterfeits and spurious specimens offered for sale; and asking their co-operation in devising such measures as might be deemed feasible to suppress the further manufacture of them, and thereby purify their trade as well as preserve the integrity of archaeological collections. To these letters we have, so far, received but three answers. We are unwilling to believe that all the others

are engaged in the miserable, petty dishonesty of selling to those who confide in their honor articles that they know are not genuine—though we are certain, that some of them are. If archaeology must be made a matter of commerce we fail to see why that commerce cannot be conducted on the same honorable principles as is any other commercial business. It may be that the greed—and, often, the want of common sense and ordinary prudence—of collectors offer alluring temptation to dealers to be dishonest; but the wretch in any branch of business who will debase his conscience and manhood by yielding to such temptation merits not only contempt but punishment. Dishonest dealers are mainly responsible for the continuance and increase of counterfeiting Indian relics; for they are the chief customers of counterfeiters, and are their accomplices. They are the middle men who shield the knaves engaged in making spurious relics, and put their fraudulent products on the market. By their dishonest practices they have brought reproach on the few of them who are honest, and have cast broad suspicion on the entire business of making relics of antiquity a matter of commerce. They have brought their trade to such disrepute that the most vigilant caution is necessary on the part of their customers to avoid being swindled. It has come to the pass that collectors cannot rely on the representations of dealers, and do not feel safe in buying from any one of them until the objects offered for sale have been satisfactorily examined—and even then are often cheated.

The object and efforts of archaeologists, voiced by this magazine, are to reform this degrading and disgraceful business. It should be raised from the low and criminal level to which cupidity has lowered it, and be elevated to a dignified, honorable and legitimate standard. We appeal to the dealers themselves to take the initiative in this reform. Only three, so far as we have yet heard from, have signified their willingness to do all they can to rectify the evil. We again ask dealers and collectors, everywhere, for an expression of their views regarding this matter, either in personal correspondence, or written for publication—the latter preferred.

Of our recent insular territorial acquisitions, the Ladrões, though not the most valuable commercially will probably prove to be the most interesting islands to the archaeologist. They number about twenty, lying in a north and south line, some of them mere points of rocks, the largest one but ninety miles in circumference, and with a united area of 1254 square miles they are really but the summits of a sunken chain of mountains. They are in the latitude of southern Mexico, 7200 miles from San Francisco and nearly 5000 miles west of our new possessions, the Hawaiian Islands. On two of the largest islands of the group, Guguan and Saypan, surprising remains of an ancient civilization have been found, consisting of huge cyclopean walls of cut stone exhibiting curious architecture and highly skilled workmanship, apparently the ruins of great and magnificent buildings. Among these lost edifices, in the tangled tropical forests, are said to be seen fragments of colossal statues and intricate stone sculptures resembling those seen on the island of Ceylon. The accounts we have received of the Ladrone Island antiquities are vague and indefinite, but after the close of the present war they no doubt will be thoroughly explored, and we may then learn whether their builders were a branch of the people who erected the grand, mysterious temples, for unknown ages in ruins, in Ceylon, Malay and Java; or of those who left the rude, gigantic statues and incomprehensible stone platforms and enclosures on Easter Island.

We acknowledge our obligations to the unknown friend who recently sent us from New Zealand a very interesting paper on the "Native Ceremonies Connected with the Preservation of Birds."

BOOK REVIEWS.

Introduction to the Study of North American Archaeology. By Professor Cyrus Thomas. Cincinnati. The Robert Clarke Company. 1898.

This new book needs no apology for its appearance. We wonder how we have done without it so long. Within the lifetime of a generation past the investigation and study of prehistoric man has been raised to a plane equal with other natural sciences; and is now equally well supplied with abstruse and technical literature of its own. But in all the list of publications we now have on American Archaeology, this science, unlike all others, has heretofore had no elementary work for beginners, schools and general readers. This want Dr. Thomas has at last well supplied. The volume he has just published is designed not only as an introductory treatise upon the science that attempts to reconstruct the unwritten history of the past, but also as a resume or compendium of the discoveries, new facts and expanding ideas, in a word, of the progress made by that science during the last fifteen years. It is not merely a dry description of the implements, ornaments and monuments of a vanished race, but a complete epitome, necessarily brief, of all that is at present known of that race, its migrations, differentiations, evolution, arts, mythology and modes of life. The author has judiciously avoided useless theorizing and discussions of unsolved problems, such as the American Indian's origin and the assumed existence of preglacial man, and has relied implicitly on unquestioned facts and rational deductions from the data secured. The chief fundamental factor in the study of archaeology, he says, is found in the monuments; and these, properly interpreted, are the key to the culture-status of their unlettered builders, aided by language, traditions, etc. Professor Thomas has long been an able assistant in the United States Bureau of Ethnology and is already a voluminous author of world-wide repute. With all advanced archaeologists, he has, in this book as in all his other works, refuted the old notion of the occupancy of America by a race preceding and superior to the Indians; and adopted the now well-established view that the red Indians were the builders of the mounds; and continued the practice of mound building for some time after the intrusion of Europeans; that Indians were the architects and constructors of the great stone edifices found in Mexico and Central America, and were still dwelling in them at the time of the Spanish invasion and, in some instances, continued to occupy them for many years subsequent; and that in point of antiquity the ruins found in America are modern compared with those of Egypt and Southern Asia.

The subject matter of the work is remarkably well prepared, and we fully endorse the statement of its publishers, that "its systematic arrangement, its convenient size, its plain and terse language, render it the first work of the kind adapted to the use of schools and academies. The time has arrived when some work relating to prehistoric or ancient America should be brought into the list of our educational books;" and we cordially commend it to educators, students and general readers whose tastes are in this direction, with confidence that it will more than meet their expectations in every respect.

It is a small volume of 390 pages, with 108 illustrations, printed and bound in the excellent style of the old and renowned Robert Clarke publishing house, and is offered for the very reasonable sum of \$2.00.

Education in Mexico and Central America. Washington. Government Printing Office. 1897.

The rapid growth of popular education in Mexico and Central America within the brief period that has elapsed since the close of our civil war is one of the marvels of the present age. It has scarcely been surpassed, proportionately,

by the progress in that direction made in this country in the same time. In all those states the few schools were controlled by the Catholic church; and its priests were almost the only teachers, prior to the expulsion of the French army of invasion from Mexico and the execution of Maximilian. Before this period, however, laws had been enacted in Mexico, and some of the Central American states, making provisions, more or less liberal, for the support of public schools, but they failed to become effective on account of revolutions, wars and consequent instability of their civil governments. The restoration of the Mexican republic, with Benito Juarez at its head, inaugurated a new regime all through Spanish North America. Under the guidance of that remarkable man Mexico was emancipated from the thralldom of the church; and among the many reforms and progressive measures instituted for the enlightenment of the people and improvement of their condition, a public school system was organized on a broad and substantial basis similar to that of our own. This system was adopted by all five of the Central American states with such modifications as their revenues, population and social conditions required. As a result the republic of Mexico today, in common schools, colleges, universities, museums, literary and scientific societies, and all other appliances and institutions of learning, rivals, if it does not surpass, the southern half of the United States. And the independent states south of Mexico have followed her closely in educational advance.

The monograph mentioned above by title constitutes chapter XII of the U. S. Commissioner of Education's annual report for the year 1895-96, and was written by Major F. F. Hilder, assistant secretary of the National Geographical Society, whose residence in Honduras for some years, and whose indefatigable labors in the investigation of social questions, as well as of physical sciences generally, have rendered him familiar with the subjects on which he so ably treats.

The National Geographical Magazine for June, appropriately styled the "Philippine Number," is wholly devoted to accounts of the geography, history, climate, ethnology, commerce, government and productions of the Philippine islands. Its first paper, by Major F. F. Hilder, Assistant Secretary of the National Geographical Society, is one of high merit, embodying a great deal of information, not generally in possession of the public, regarding the history and geography of the archipelago, with descriptions of the larger islands and their populations, productions, animals, agriculture and manufactures, their harbors, towns, etc., accompanied with several maps and half-tone illustrations. The islands altogether comprise an area of about 150,000 square miles; the two largest each relatively almost as large as the State of Ohio; rich in minerals and timber, and their fertile soil producing hemp, rice, sugar, fruits, etc., of great commercial value. The climate is warm, but not unhealthy; the mean temperature of winter, or January and February, is stated to be 77 degrees, and of summer no higher than 98 degrees or 99 degrees.

Another well-illustrated paper is by Prof. Dean C. Worcester, of the University of Michigan, who, with a party of associate naturalists, visited, and penetrated into the interior of, several of the least known islands of the group, to study their flora and fauna. This is a highly interesting ethnological treatise chiefly descriptive of the native people, who are still in a great measure isolated from foreign influences and living in primitive barbarism. None of them believe in a future state of existence, and yet are remarkably peaceable, moral, virtuous and honest. The few attempts to civilize them have so far proven abortive. "The priest at Narijan," Prof. Worcester says, "told me with deep disgust of the reply of a Mangyan to whom he had attempted to demonstrate the benefits of civilization and Christianity. The unregenerate savage replied that if he

adopted civilization and became a Christian it would require money to be born, money to be allowed to live, money to marry, money to die and money to be buried; and he considered himself better off as he was. Inasmuch as his statement of the case was strictly correct, and as it was my observation that morality increased among the Philippine natives as the square of the distance from centers of Spanish 'civilization,' I could not but feel that this mountain philosopher had decided wisely." This paper is followed by one on the commerce of the islands, by the editor, and a brief conclusion on "The Disposition of the Philippines," by Mr. Charles E. Howe, taken from the *Financial Review* of May 27.

The *National Geographical Magazine* is a 47-page monthly published at 31 Union Square, New York, by the National Geographical Society, at \$2.50 per annum.

NOTES.

Recently was unearthed a short distance from a cache of knives, arrowheads, etc., by Dr. Frank M. Edwards, of Binghamton, New York, an aboriginal skull containing several teeth made of flint. They had been inserted by prying out the roots of the decayed tooth, and fixing in its place pieces of tooth-shaped flint. The work was well done. Some of the adjacent molars had fallen out, but the flinty teeth remained firm in their sockets. Workmen who were not long ago excavating near this spot, unearthed the scarred, burned trunk of a tree bearing strange hieroglyphics. It is supposed this tree was used in torturing, for it once stood on a spot dedicated by the Indians to the punishment of tribal malefactors and prisoners taken from other tribes. Captives were often brought miles to suffer at its foot. Dr. Edwards also uncovered a pile of knives, arrowheads and axes, some of them in perfect condition, others broken. This site was undoubtedly the workshop of an aboriginal implement maker, who furnished weapons for the community with whom he resided.

One would hardly suppose that there could be particular rules as to the manner of sitting upon the ground. But here, as in every other part of Indian life, there is a rigid observance of custom. Men may properly sit upon their heels or cross-legged, but no woman may assume these attitudes. She must sit sidewise, gathering her feet well under her and make a broad, smooth lap. When working, she may kneel or squat, and when resting she, as well as the men, may sit with legs extended, but at all other times men and women must observe the etiquette of posture distinctive of sex. To rise without touching the ground with the hand, springing up lightly and easily to the feet, is a bit of good breeding very difficult to one not "to the manor born." Careful parents are particular to train their children in these niceties of behavior.

Among the Winnebagos the little girls are drilled in the proper way of standing when under observation on dress occasions. Their position of hands and feet is also the proper one for the women in certain religious dances. While among the Sioux a mother with a good-sized family of boys and girls propounded to me the question whether white women did not find their daughters more troublesome than their sons. She was sure she did. "Look at those girls," said she. "I have their clothes to make, their hair to braid, and to see that they learn how to behave. Now, my boys are no trouble." As I glanced at the group of children, the glossy braids of the girls falling over their single smock, and the boys, naked but for the breech clout, their miniature scalp lock ornamented with a brass sleigh bell surmounting a snarl of frouzy hair, I recognized the kinship of maternal perplexities the world over.—Miss Alice C. Fletcher, in *Century*.

The Smithsonian Institution will soon publish a most interesting account of excavations recently made near Winslow, Ariz., under its auspices, the result of which was the discovery of many things of archaeological importance. Dr. J. Walker Fewkes had charge of the digging, which unearthed portions of the ruins of four ancient and long-buried cities. The aboriginal inhabitants of the region have traditions to the effect that the towns in question were the dwelling places of remote ancestors of their own, and the "finds" made incidentally to the excavations seem to show that this belief is presumably correct. Up to a comparatively recent date the walls of the ruined buildings rose to a considerable height, but the Mormons, in constructing the nearby Sunset City, now itself in ruins, utilized the stones for their houses.

One of these buried cities, to which the most careful study was given, was evidently a pueblo of great size, of a rectangular shape, and inclosing plazas. From this ancient

ruin, now represented only by a huge mound, were taken several hundred beautiful objects of prehistoric handiwork. They were obtained from the necropolis or burial place of the pueblo, in the very shadow of which the dead were interred, not being carried away to any distance. Almost every grave was indicated by a flat stone slab, which lay above a skeleton. Many of these stones were perforated with round, oval or square holes. Some of the bodies were extended at length, while others had their knees drawn up to the breast.

Many vases and pots were obtained which bore strange designs, mostly representing mythological birds and beasts. Their significance, as illustrating the mythology of the people to whom the pottery belonged, is ascertainable to some extent from the traditions still current among the living aborigines. One design, wholly unique, is painted on the bottom of a bowl. On one side of the rim is represented the upper part of a man and below, in the interior of the bowl, are two footprints, as if the man had leaped into the receptacle. From these a line of footprints extends across the bottom of the bowl, ending at the opposite rim, behind a figure of the lower body and legs of a man crawling out of the bowl on the opposite side.

On another piece of pottery, a food basin, is a figure of a spider representing the mythological spider woman. She is an earth goddess, bride of the sun and the mother of the twin war gods.

The priests made elaborate prayer sticks, some of which were several feet long, and painted them with yellow, green, blue, red, white and black pigments, the same as those used by their descendants. They prized for ceremonial purposes quartz crystals, stone concretions and fragments of obsidian. They were acquainted with bells made of copper. They had rattles of sea shells, and wore fringes of shells on the margins of their garments. In ceremonials they made use of stone slabs painted with animals.

The warriors were armed with bows and arrows tipped with stone and obsidian points. They had clubs, stone hammers and axes. They made needles, bodkins and awls of bird stones, antelope tibiae and ribs, which they sometimes carved in imitation of animals. The women were adepts in the manufacture of earthenware vessels, which they decorated with elaborate figures in several colors. They were familiar with the art of glazing pottery, and practiced etching of the same to a very limited extent. They buried their dead just beyond the outer home walls, and deposited with them various votive offerings, pottery, basketry, ceremonial and other paraphernalia, having first painted the face and wrapped the body in matting. The symbols on their pottery indicate that they recognized the sun and spider as powerful deities. They worshipped the rain, clouds, lightning, snake, tadpole, frog and various mythical birds. They entertained an idea of a future life, and associated the dead with rain gods.

The skeleton of a prehistoric man has just been unearthed ten miles east of Columbia, Missouri. The skeleton is not so remarkable as the vault in which it was found, which was twelve feet under ground and of wonderfully ingenious construction. Those who unearthed the skeleton, which is believed to be that of a mound builder, are Rev. T. D. Penn, John A. Ford, Dr. La Master and William Crenshaw. A cut was made with scrapers and teams through a sandy loam, of which the mound was constructed throughout. When the vault was reached the cut was found to be twelve feet deep. Directly under the apex of the mound the vault was found. It was seven feet nine inches long, two feet six inches broad and two feet deep, lying due east and west, with the head to the west, lined with thin limestone rocks, forming a floor and walls to the vault. The skeleton was found in a more or less decomposed condition, each bone in place, or the ashes of its decomposition clearly outlining its position, excepting the bones of the head. When the stones were taken from the vault the wall showed the impression of the tools with which it was dug, some of which were cut from the clay walls. No breaks or marks of tools of any kind were found on the lining stones.

This man of old was six feet high or more in his moccasins, and came to his death in the prime of life. While all the bones of the skeleton were found in position, from those of the heel to the atlas, the bones of the head were found to be either absent or occupying widely separated places at the head of the vault. The lower jaw, a bone known to resist decay equal to any other bone of the body, was all absent, not a tooth from which could be found. The upper right alveola process, containing five teeth, was found in a good state of preservation. The theory is advanced that this part of the upper jaw was detached from the fleshy part, and, therefore, resisted decomposition. Other teeth from the same jaw were found with part of the upper skull bone on the other side of the vault. The piece with teeth in it was found on the left side of the body. Nothing could have disturbed the body after it was laid in the vault. Both the teeth found and the upper end, or the neck of the femur, indicate a man of middle age. The cut was made a few feet from the center of the mound, so as not to disturb the vault with tools while making the cut.

Under the date of May 2d the newspapers of Cairo, Egypt, give additional information on the discovery of royal mummies made last winter by Victor Loret, director-general of the antiquities service. This sepulchral room which he explored at Bibanel-Molouk, near Thebes, was a real royal hiding place or "cachette," having a similarity to the one explored by Bruzsch Bey at Deir-el-Bahari. Besides Amenophis II's body, it contained nine royal mummies, the identity of which Mr. Loret has been able to establish. They belong to three different dynasties: To the eighteenth dynasty, Amenophis II, Thothmes IV, Amenophis III and Khou-en-Aten, or Amenophis IV; to the nineteenth dynasty, Siptah and Seti II; to the twentieth dynasty, Set-Nakht, Rameses IV, Rameses V and Rameses VI.

Another very interesting exploration was also made last winter by A. Silva White. He made a six weeks' trip across the desert to the oasis of Siwah, better known in antiquity under the name of Oasis of Ammon. Since the time of Alexander the Great the tourists to this interesting ground and to the celebrated shrine of Jupiter-Ammon have not been very numerous, as facilities for transportation do not seem to have materially changed since that remote period.

It took Mr. White nineteen days to reach Siwah by way of Moghara. During his stay of a week there he collected some bronze coins of Ptolemy I (311-305 B. C.) and secured a few photographs of hieroglyphic inscriptions. On one of them is recorded the name of a certain Papa, royal scribe and priest of the twentieth dynasty (1200 B. C.).

The next annual meeting of the American Association for the Advancement of Science, to be held during the week beginning August 22, is likely to prove a more than usually interesting one for various reasons. In the first place, it is to be held in Boston, where there is more culture and scholarship to the square inch, and less of sordid indifference to intellectual pursuits, than in other cities on this side of the Atlantic which might be named. Boston, too, is the capital of a region famous for its educational institutions and progressive ideas, if not to a greater degree at least for a much longer period than any other in this country.

The fact that the American Association has now completed half a century of existence will appropriately receive emphasis in the exercises of this meeting. There is much in the actual work of American scientists which it will be profitable to review, and a good deal of personal reminiscence that will be in order.

Finally, the president this year, Professor F. W. Putnam, who fills the chair of archaeology and anthropology at Harvard, has been identified with the association in the responsible office of secretary for exactly a quarter of a century, or half the lifetime of that organization. It is largely due to his enthusiasm and efforts that the association has grown to its present size and usefulness. And both directly and indirectly the coming meeting will recognize the obligations of the society to so faithful a servant.

The ancient Egyptians made use of exotic as well as indigenous woods in their cabinet and wheelwright work; but the hieroglyphic inscriptions give us scanty information as to what these woods were. It is possible, on the other hand, to reach very exact conclusions on this point by the chemical analysis and histologic study of the different remnants which have come down to us. This is precisely what has been done by Dr. Georges Beauvisage, professor of botany at the Faculté de Médecine at Lyons. He has taken some pieces of boards from Pharaonic coffins and some utensils in ebony, and after a microscopic examination has reached the following results: The coffin lids, which were sent from Cairo and came from excavations at Meir, near Qousieh, belonged to the twelfth dynasty. They showed all the distinctive characteristics of yew wood, of the variety called *Taxus haccata*, that being the only variety of the yew tree known in the Oriental region of the Mediterranean basin. This kind of yew is not met with in Egypt, or in Syria, and the nearest region to the Nile where it grows naturally is in the Taurus mountains of Cilicia. Hence it was from there that the Pharaohs of the twelfth dynasty imported it, unless it grew, in early times, among the mountains of northern Syria. In any case, it is evident that at that early period relations already existed between Egypt and Asia, although we do not know what these relations were. Ebony filled an important place in Egyptian cabinet work, but as yet it has not been proved to what variety and family the habn of the Pharaonic inscriptions belonged. Dr. Beauvisage examined several ebony utensils which had been sent to him from Egypt, and found, after careful chemical analysis, that they were made of the *Dalbergia melanoxylon*, a leguminous tree which grows in the region extending from Senegal to the Red Sea, and not of the *Diospyros Ebenacea* of tropical Asia.

Professor William Libbey, of Princeton University, will lead a scientific expedition to Hawaii this year. He hopes to visit and explore the burial caves of the Hawaiian kings of long ago. So far as known, no white man has ever explored them or gained even a good general idea regarding them.

Many interesting questions in regard to the earliest human inhabitants of America are revived by the departure from New York a few days ago of two scientific expeditions, one going to the vicinity of Bering Strait and the other to Mexico, both of them being provided for by the liberality of Morris K. Jesup, president of the American Museum of Natural History. The lack of scientific evidence to demonstrate the possible origin of American races in Asia is one which the Jesup expeditions seek to remedy. The first of these, sent out last year, visited British Columbia and brought back a large collection of articles either taken from Indian burial places or obtained from people now living. Should the two expeditions prove successful in their undertaking, it is probable that several others will be provided for out of the lavish fund given by Mr. Jesup. This method of procedure is obviously a judicious one, inasmuch as it is recognized at the outset that each one of these explorations is an experiment. That is always the case with scientific research.

At least six different centers of civilization in North America and four in South America were mentioned in a lecture given a few months ago by Dr. Daniel G. Brinton on "The Culture Status of the American Indian at the Period of His Discovery." In the Ohio and Upper Mississippi Valleys, for instance, fully 1000 years ago, there were the mound builders, a race skilled in the arts of the weaver, stone dresser and potter, and given to erecting over the graves of their heroes massive tumuli, often seventy, eighty and even ninety feet in height.

In the southwestern part of the United States were the cliff dwellers, who either excavated living apartments in the vertical sides of the canyons, where the rock was soft enough, or built their houses (of stone and mortar) on projecting ledges in similar situations. These people left graceful cups and jars, implements of bone and stone, window shades and other evidences of industrial advancement. Near the cliff dwellers were a race that lived in pueblos or towns and built their houses and larger structures of adobe, or unburned brick. In one of their settlements, Casas Grandes, which had been left in ruins long before the Spaniards explored the region, in 1660, there was one edifice 800 feet long and 250 feet wide. This particular town lay 120 miles south of what is now the boundary of the United States. But there were a number of them further north, in New Mexico and Arizona. The Zunis, of whom Frank Cushing told so much a few years ago, belong to this racial stock, the various tribes of which were associated into what was called the Tusayan Confederacy. Some of their ruined towns, in the country of the Hopi Indians, in Arizona, were explored in 1895 by J. Walter Fewkes, under the auspices of the Smithsonian Institution. He found many dwellings that had been excavated from the sides of rocky cliffs by the ancestors of the Hopis, and refers to those ancient residents of the upper Gila valley as "aboriginal troglodytes." Oraibi, another Tusayan village, or pueblo, was visited last year by George A. Dorsey, of the Field Columbian Museum, in Chicago, and he brought home a valuable lot of plaster casts of living representatives of this ancient people.

A favorite notion among ethnologists is that the earliest men in America came here from Asia. One of the most recent utterances on this subject is an address by Dr. E. T. Hamy, a well-known French anthropologist, three years ago. He discussed the spread of the yellow races from Eastern Asia, and recognized eight different types. These included not only the Chinese and Turk, but certain Siberian tribes, and also the Aleuts (on the Alaskan side of Bering Strait), and the Esquimaux of northeastern Greenland. He felt confident that a wave, or several waves, of emigration had not only extended from Siberia across "boreal" (arctic) America, but also further down into the heart of the continent. His argument, so far as America is concerned, is based upon resemblances found in the skulls and other bones of the races on the two sides of the Pacific.

It has been suggested, moreover, that the spirit of enterprise and the overcrowding of old homes, which often explain other peaceful invasions of new territory, may not have been the only agencies in the settlement of America by Asiatics. "Petermann's Mitteilungen" in 1890 contained a suggestive essay by Otto Sittig on "Compulsory Migrations in the Pacific." In that interesting paper are recited a large number of instances of boats and ships having been carried out of their course to distant continents and islands. Scores of voyagers in the trade-wind regions were borne westward from the Gilbert, Marshall, Samoan and Tonga groups of islands. But further north the great Japanese gulf stream, aided by the wind, had carried shipwrecked sailors from China and Japan to the shores of Alaska and Oregon. And if a few cases of this kind have occurred within the short period for which a record is obtainable, it seems probable that many more have happened of which the story has been lost.

A. F. B.

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FIG. 1.—(Stone Images, Benton Co., Tenn —Front.)

ANCIENT STONE IMAGES IN TENNESSEE.

More ancient images or idols of stone and terra cotta have been found in Tennessee, than in any other state or section of America north of Mexico. They have been discovered in almost all portions of the state. A large number of them have been illustrated in "The Antiquities of Tennessee," and other publications.

Among recent discoveries not yet reported or illustrated, are two images of stone found in Benton County, Tennessee, near the west bank of the Tennessee river. They are of special interest, as they are the largest prehistoric images yet discovered within the territory of the United States, so far as I have been able to learn.

They were found by William Hensley on April 29th, 1896, in an ancient mound near the mouth of Duck river. They were lying side by side about three feet below the surface of the mound. The general section of the Tennessee Valley, near the mouth of Duck river, is marked by numerous remains of its prehis-

toric inhabitants. Figure I presents a front view of the two images, and figure II presents the side view. Their forms are not of special interest as they are rudely executed, and are not unlike a number of other images found in Tennessee. They are made of light colored limestone, easily worked. As will be observed, they are very similar in appearance. The close-fitting hoods or caps are sometimes to be seen on other stone and pottery images found in this state.

The larger figure is thirty-three and a half inches high, and the smaller one twenty-three inches.

The writer was fortunately able to purchase them for the Tennessee Historical Society and they can now be seen in the society's fine collection at Nashville.

As already stated, we believe they are the largest ancient stone images yet discovered in America, north of Mexico. The stone images heretofore found in Tennessee are generally but from twelve to thirteen inches in height, and the images of pottery as a class are much smaller.

The two large images illustrated are much ruder than most of the stone idols found in Mexico and Central America, yet some of the latter are very rude and clumsy and not unlike some of our Tennessee images. Somewhat similar images of stone have also been discovered on the islands in the Pacific Ocean.



FIG. 11—Side View.



FIG. 111—Pottery Image, Davidson Co., Tenn.
5½ inches high.

We are told by the chroniclers of De Soto that statues of wood were found at the entrance of the so-called temple or mausoleum at Talameco. They were of gigantic size, and were carved with considerable skill. Adair also describes one of these large carved statues of wood, in the human form.

While we cannot be certain that these images of wood and stone were worshipped as idols, we believe they were in some way connected with religious or sacred ceremonies, or were used as part of the religious machinery of the native priests or medicine men. It does not seem probable that so much labor would

have been expended upon some of these elaborately wrought figures for purposes of mere ornament or amusement.

Images and idols of stone and clay have been found in great numbers in the ancient graves of Central America and Mexico, as we learn from Hubert Bancroft, Charney and others. Their use as objects of worship is amply authenticated.

Among the modern tribes, the Natchez Indians, one of the most advanced tribes were probably worshippers of idols.

As we learn from Father Petit that "The Natchez have a temple (filled) with idols. These idols are different figures of men and women for which they have the deepest veneration."

We also present an illustration of an image of pottery, with the legs crossed in front, somewhat after the oriental fashion. (Figure III.) The image is solid, and about five and a half inches in height. The head is very well executed. It was found in a stone grave on the McGavock farm, near Nashville, and is in the writer's collection. One arm was unfortunately broken by the digger's trowel.

Colonel Thomas Wilson, curator of prehistoric archaeology in the National Museum, not long since discovered among the engraved shell gorgets from Tennessee in the National Museum a well-engraved figure, with legs crossed in front resembling the statue of Buddha or the Buddhist idols. It is a very interesting and suggestive object, and has attracted much attention. The art represented upon the engraved shell seems much in advance of most of the engravings and inscriptions found among the remains of the mound tribes.

The little pottery image (Figure III) is a rather rude example of a cross-legged idol, but it is of value as showing that the real idols or images of the stone grave race of Tennessee were sometimes fashioned in this form. In my collection of twenty-five or more images from the stone graves, this is the only cross-legged specimen.

G. P. THRUSTON.

Nashville, Tenn.

INDIAN FISHING CONTRIVANCES.

The abundance of salmon and other fish in the streams of California and other parts of the northwest coast was one of the striking features of that land of big things. This food product—"the poor man's meat"—was the chief reliance of the natives located where this was available. Sun-dried upon their huts or upon scaffolds, the supply, in excess of the daily needs, was carefully packed, without salt, and preserved for use in winter. The weirs and other contrivances of aboriginal skill for taking the fish were, in some instances, marvels of workmanship, considering the rudeness and simplicity of the people that designed and constructed them. A few facts in this connection may not be unacceptable to the readers of *The Archaeologist*, even though these facts be not all given at first hand.

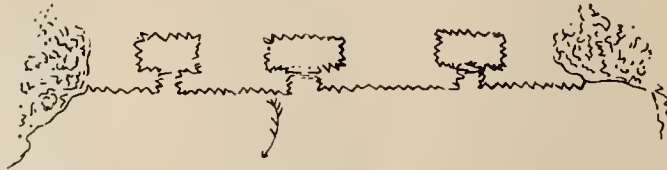
George Gibbs, in his "Journal of the Expedition of Col. Reddie McKee, United States Indian agent, through northwestern California, in the summer and fall of 1851," describes one of these fish-weirs, which he saw on the Klamath river, about two miles above its junction with the Trinity. The location was just opposite a large Indian village known as Hai-am-mu. "It crossed the entire river," says the writer, "here about 75 yards wide, elbowing up stream in the deepest part. It was built by first driving stout posts into the bed of the river at a distance of some two feet apart, having a moderate slope, and supported from below at intervals of 10 or 12 feet, by two braces; the one coming to the surface of the water, the other reaching to the string-pieces. These last were heavy

spars, about 30 feet in length, and were secured to each post by withes. The whole dam was faced with twigs, carefully peeled, and placed so close together as to prevent the fish from passing up. The top at this stage of the water was two or three feet above the surface. The labor of constructing this work must, with the few and insufficient tools of the Indians, have been immense. Slight scaffolds were built out below it, from which the fish were taken in scoop-nets; they also employ drag-nets or spear them, the spear having the barb moveable, and fastened to the shaft with a string, in order to afford the salmon play. Similar dams to this exist on the Klamath, a few miles below the forks, and about 15 miles above this one, and there is another on the Trinity, 13 or 14 miles above its mouth. They form a frequent cause of quarrel among the bands inhabiting different parts of the river. Some understanding, however, seems to exist as to opening portions of them at times, to allow the passage of fish for the supply of those above."*

I was located on the Trinity at the time of which the writer speaks, and, through prospectors and packers, heard much of these works of native ingenuity. I also saw one of the dams or weirs across the Trinity, a little above the mouth of the North Fork. This specimen was quite simple in construction. A row of stakes or pickets, supported at the upper end by a stringer, was thrown across the stream to obstruct the upward passage of fish. The fish were taken, so far as my observation extended, with the usual native spear, from the top of the stringer.

But perhaps the most elaborate and formidable of such fish-weirs of which we have any account, was the one on the Sacramento near the site of the present town of Colusa. Lieut. Cadwalader Ringgold, U. S. navy, of the Wilkes' * exploring expedition, saw this structure in 1841, and described it as follows:

"This fish-weir was constructed with great art. Stakes pointing down the stream, had been driven into its bed, having three openings, which led into square pens above. Over each of the entrances into the pens was a platform, on which the natives stand to take the fish. On these also were heaps of ashes, indicating that the natives make use of fire to attract the fish."* The position was ascertained to be in latitude $39^{\circ} 13' 39''$. The annexed cut, from a drawing by Dr. Charles Pickering, of the Ringgold party, represents the outlines of this weir.



FISH WEIR.

Gen. Bidwell, at my request, has furnished the following interesting additional information respecting this wonderful piece of "Digger" contrivance:

Near Prattville, Plumas Co., Cal., Aug. 19, 1897.

Hon. D. R. Leeper, South Bend, Ind.:

My Dear Sir: Your esteemed favor of the 5th inst. has overtaken me. We—my wife, with two or three helpers—left Chico the 5th instant on our summer outing, roving somewhat, sleeping in tents, etc. We are literally in the depths of the Sierra Nevada mountains. Our next move will land us about 25 miles from

* Reproduced from "Schoolcraft's Archives," Vol. III, p. 146. See also Bancroft's "Native Races," Vol. I, p. 338.

* Charles Wilkes, who had charge of this expedition, had command of the frigate San Jacinto in 1861, when the Confederate commissioners, Mason and Slidell, were forcibly taken from the British ship Trent.

* "United States Exploring Expedition," Vol. V, p. 188.

any postoffice. But this is no answer to your letter in regard to the fish-weir on the Sacramento river.

It was a remarkable structure, considering the time when it was made, and by wild Indians unacquainted with any tool of iron or any art of civilization. Its exact location in relation to any town or landmark now existing on that river I cannot define, for it is long since I have passed that way. Colusa and Princeton are wellknown towns on the west side of the Sacramento and about twelve miles apart. This weir was between them—possibly about midway—and I should say 18 to 20 miles below the mouth of Chico creek. The Sacramento river in those early days abounded in salmon, sturgeon and other fish. These constituted their principal food supply.

In about 1826—about 15 years before I came to California, as nearly as I could learn from the Indians and other sources—the smallpox largely depopulated the Sacramento valley of Indians. But whether it prevailed less up and down the river where the fish-weir was, or the tenants of the villages had congregated more in that vicinity, I do not know. Whatever the cause, however, may have been, that section had more Indians—had larger and more villages in a limited section of country than any other part of the valley. The Indians there were adepts at making nets, which they did from twine and cords their women twisted by hand. These were made from what white people used to call "Indian hemp," which was a kind of milkweed that grew abundantly in marshy places. Where the fish-weir in question was located the river was wide—not less than 400 to 500 feet wide I think—but not deep, that is to say, less deep on account of the greater width of the stream. The depth of the water in summer I should say was quite uniform, and would average three feet or nearly so. In winter and times of floods the river must have risen a good deal, but much less probably than other places by reason of the spread of the stream and the freer flow of the water over the wide sandy shallow.

The weir was constructed mostly of willow poles of various sizes and lengths. The largest were burned in two so as to secure the required length and to point the end—that is, as much as they could by burning—so that it could be worked down into the sandy river bottom far enough to hold it fast against the current which was free at that place, but not rapid. The weir, when constructed, had openings between the sections three to six or more feet where nets were set to catch the fish.

There were two rows of the posts I think. They went entirely across the stream, and stood about six feet (or 8 perhaps) apart. Tall poles were lashed firmly along the tops. Other poles 8 or 9 feet long were fastened across on top so as to form a complete bridge for men to walk on entirely across the river. In 1843 the Indians a little lower down on the river were said to be hostile—reported to have shot arrows at immigrants coming from Oregon. Sutter sent men to punish them. I did not go on that outrageous campaign. But some of the men who did go told me that they left their horses on the east side of the river and crossed over on the fish-weir which formed a bridge wide enough for six men to walk abreast.

At that date I think there must have been 2500 to 3000 Indians along the river within ten miles above and below the fish-weir. The largest village was the Colus (on the site of the present town of Colusa), which in 1844 I estimated to have had 1200 people. The village nearest the fish-weir was, I think, the Dac Dac.

Yours very sincerely, JOHN BIDWELL.

P. S. I should have said that the Indians used grapevines to lash their poles together, possibly in some places cords of wild hemp.

According to Dr. J. D. B. Stillman, who, in August, 1849, journeyed up the Sacramento by boat as far as Red Bluff, this dam or weir was still standing at that time, attesting its great strength to have resisted the annual freshets so many years. The doctor thus speaks of the structure: "This is a strong dam, made of poles planted upright, and bound together with withes,"* adding that it was the same that was described in "Wilkes'." The Indians opened a place for the boat to pass through, as they had proffered to do for Lieut. Ringgold, but the latter faced about here, concluding from the river being "filled with rapids" at this point and for two or three miles above, covering the extent of his examination, that this was the head of navigation.

Something has been said of the spear or harpoon used by the savages for taking fish. This ingenious device merits further mention. Though the construction varied somewhat, yet the principle employed seems to have been in universal use among the Indians that fished on the streams west of the Rocky mountains. Of the many descriptions I have seen of this spear, I am tempted to quote that given by Peter Burnett in his "Recollections of An Old Pioneer," p. 120. Mr. Burnett† crossed the plains to Oregon in 1843, and the process of fishing he describes he saw on that journey at Salmon Falls, Snake river: "This spear," he says, "consists of a strong, smooth pole, ten or twelve feet long and an inch and a half in diameter, made of hard, tough wood, on one end of which there is fastened a piece of sharp-pointed buckhorn about four inches long. The larger end of this piece of buckhorn is hollowed out to the depth of about three inches, and fastened on the end of the pole, which is tapered to fit into it. To the middle of this buckhorn there is securely fastened a thong or string of sinew, the other end of which is firmly attached to the pole about a foot above the buckhorn, leaving a considerable slack in the string. With this spear the fisherman lies down or sits close to one of these narrow channels, with the point of his spear resting near where the fish must pass. In this position he remains motionless until he sees a fish slowly ascending the rapid current; when, with the quick motion of a juggler, he pushes his spear clear through the salmon before this powerful fish can dodge it. The buckhorn at once slips off the end of the pole, on the other side of the fish, the first flounce he makes, but he is securely held by the thong attached to the pole. No spear could be more skillfully designed or more effectually used than this."

This was the type of spear I saw on the Trinity in 1850-51; and I was not greatly surprised to see, as I did, in 1884, at the rapids of the Sacramento, just above Red Bluff, a number of white men fishing with precisely the same sort of spear, only that steel instead of buckhorn was used for the head; so superior was this contrivance thought to be to the rigid three to four tined spear of the white man.

D. R. LEEPER.

THE DIGGER INDIAN AND HIS "CRY."

With the exception of the Patagonian, the Digger Indian ranks lowest in the scale of humanity.

The Digger has a religion and a belief in a future; herein lies one sign of his superiority over that other and lower type of mankind. Also, his South American rival for the zero medal takes no thought of the morrow, particularly as to what he shall eat; but the Digger takes a lesson from the squirrel and stores many nuts; hazel, pine and acorns, for his winter's food. He also dries bushels of grasshoppers, and madrone and manzanita berries. Ground mice, beetles, and,

* "Seeking the Golden Fleece." Stillman, p. 133.

Was the first Governor of California after it became a State.

some say, the long green slugs also enter their bill of fare. They do dig out from wet, damp spots, the angle worm; and it is at once swallowed; evidently with as much enjoyment as our raw oysters are by us.

The acorns which he stores are the large sweet nuts from the live oak, but he also uses the bitter acorn, fruit of the "scrub oak," as it is locally known. The pine nuts are beaten from the giant cones of the nut pine, or gathered from the ground where the winds have shaken them.

These are small thick-shelled nuts with a very sweet kernel, and are ground with the berries before mentioned, the acorns and grasshoppers, into flour, from which cakes are mixed and dried. The "campoodie" (Mexican or "Greaser" word I think) was roughly made from waste slabs from the mills, in the days when I used to peer through the cracks to see the tempting supplies within. The door was fastened; and even the school boys, who were always ready to venture much for a supply of hazel nuts or "pineys," did not dare to open that cache; for though a Digger will not go to war or fight, "old timers" tell that he will send an arrow into the back of one who offends him seriously. But this, again, is only hearsay; I never knew of a Digger's revenge or injury to any one, not so much as by the theft of an old nail, and I lived in their neighborhood for more than ten years.

But while the Digger provides a shelter for his stores, for himself and family the blue sky answers; or, in stormy weather, four sapling poles support a roof of green boughs, and under this rude shelter crouch these miserable, half-clad children of our common father (?) Adam. Cold, rainy days find them with no fire; and I can not remember ever having found a camping party of Diggers enjoying this common luxury, which to our minds would seem rather a necessity. My acquaintance with the Digger tribe extended only amongst the few wandering families in that portion of Yuba and Butte counties (California), which lies in or near the foothills of the Sierra Nevadas. I have always been told that the tribe did not extend east of these mountains, and not so far south as Marysville. I know that the Pah-Utes, or "Pintes," were commonly to be seen in the streets of Marysville; but rarely a Digger. I lived some years in this city after my childhood years spent in the foothills, and I know that this fact held good seventeen years ago; and right here I would say that I write of what I saw and learned in the early 70's to 1880. In those days a Pah-Ute would quickly resent being mistaken for a Digger, though to careless observers there is very little difference between the two tribes. I have read that there is no insult more keen, amongst the tribes far east of California, than to be called a Digger! It is a name of reproach and contempt.

The Frazer river Indians have told me that "no one likes to be called a Digger because the Diggers are an awful dirty people."

It was never my good fortune to see a native costume of rabbit skins, but I have heard the old miners tell how they were sewed with sinews and a bone awl or needle; or a large thorn was used in place of the bone needle. It was not unusual in '68 and '69 to see a Digger enter the kitchen clad in the beauty of nature; but after this he never deviated from the regulation old shirt open at the bosom, the trousers held in place by a leather belt, and bound from ankle half way to the knee with baling rope. About the forehead was bound a cloth or kerchief, knotted at the back of the head, leaving the crown exposed to summer sun or winter rain.

The object of the baling rope is two fold. Primarily, it prevents the catching of the trousers legs on snags or protruding knots as he pushes through the brush and over logs in his search for small game or roots. Secondly, it forms a generous pair of pockets into which Digger-Lo pours the scraps of cold meat.

bread and pie which he gathers from each house he passes. This method of begging is peculiarly his own. Leaving his mahalas (women), of whom he has two or perhaps three, outside, he opens the door and walks in, seating himself on the wood-box, as a rule, but always close to the stove. It may be July, and no fire in, but this makes no difference. He always comes in at the kitchen, and if it is afternoon and no one there, he sits and bides your coming. In any case, he sits without speaking, until he is offered food. Though better may be in sight he accepts what is offered, asking for nothing. Probably he will go now; if he does not, offer him some old clothes—this is what he is waiting for. It may be that in passing out he will take the kitchen looking glass with him. If you understand your visitor you simply nod and smile; he is not a thief, he only wishes to shave. This performance is evidently a tedious one; and as he sits outside, solemnly peering into the glass, and with a tiny pair of nippers, he twigs out his scanty beard, one hair at a time; his mahalas squat about him and twist their faces into sympathetic puckers, or laugh outright when a twinge of misery causes the Digger to exclaim, "Ugh!"

The mahalas are made beasts of burden by their lord and master. They must gather the food for winter, and they must pack the heavy baskets with their loads of acorns and berries while he walks ahead of them idle and empty handed.

The Diggers weave their baskets from bark and rootlets. They have but one form; and they range in size from the tiny toy basket to one which will hold a barrel of water. They are all water-tight. The Digger shows no taste in pattern or color in her basket weaving, each piece of work being a plain, dirty brown affair.

I doubt if stone pestles are used now in the grinding of flour; but in '73 I had in a collection of curios a "Digger pestle" of white stone resembling marble; a kind of quartz, I presume. It weighed about four pounds, was perfectly smooth and evenly made. We always believed it to have been water-worn into shape, as we never saw the Diggers use stone tools of any kind; their arrows even being but sharply-pointed sticks without "head" either of wood or stone.

In 1879 I saw, in Butte county, California, a Digger "sweat and dance" house. It was a "dugout" room in a steep bank or hill side; its only outlet for foul air being a tiny hole in the ground leading from the hill above into the "ceiling" (?) of the room below. I could not learn the entire use of this room, or the custom which brought them here in gatherings to dance the "sweat dance." Perhaps some reader may be able to tell us more of this aboriginal custom.

A Digger will rarely work; offer him employment for an hour or two and he will say, "Ugh! me heap big buck!" This means that he has not yet sunk to the level of labor. But all this changes as October draws near; October, the time for the annual "cry."

What the Digger will not do for the living, he does for the dead of his tribe. An old Digger told me, in reply to some questions on the subject, that should he fail to burn goods for the dead, then none would burn food and clothes for him, nor bows nor arrows—then how could he live in the other world? Evidently he does not expect that the mahalas will enter the next world, else he would depend upon their labors there as he does here. It is for this great yearly "Burn and Cry" that the Digger strives to earn a few dollars, with which to purchase supplies for the flames. He also begs for this purpose, and his mahalas make quilts and baskets and "cakes"—all to be thrown into the mourning fire.

Their dead, or the bones of the dead, which have not already been burned are brought to the "cry ground" and burned with the gifts. The "cry ground"

was situated about a mile and a half from my home; and so it happened that we heard much of the mourning. For three or four days previous to the "cry" the Indians would gather from remote points, each one bowed under heavy loads, even the old "bucks" condescending to work now. I never saw the bodies of the dead, but I was always told by the old settlers, and those who knew their customs well, that the dead who had passed away since the last "cry," were being taken to the "cry ground." Of this I cannot speak from my own knowledge. One never realized how many Diggers there were in the country, till he watched them gathering for this great religious ceremony. The mahalas were the chief mourners; and from hill side to hill side echoed their mournful cry, "Hoo-ah-hoo-ah-hoo!" I know of no cry to compare it with, only that of the cougar in its last notes. It was mournful in the extreme, and, to one who was a stranger to the Digger cry, it would prove nerve tearing. Day and night for nearly a week, these sounds echoed from every hill about us. Through the mourning days, the mahalas must not sleep or neglect to mourn, particularly at night when the moon was in the sky.

Often as a child, I played in the "cry ground," digging amongst its ashes for melted glass and beads for my "collection of curios"; but only once did I attend a cry. A chief was to be mourned for, and a dog burned to accompany his soul in the new land; and the "cry" was to be an unusually large one; or, as the Diggers said, "Heap big cry." There were far more Indians there than usual, and the nights were made more hideous than upon previous years even. We waited until ten o'clock to leave home; and our walk through the great pine forest of the Sierra Nevadas was an experience in itself. For, with the whispering pines, and roaring of mountain creeks, was mingled the howls of more than a hundred mourning mahalas.

The "cry ground" was situated in a level green field, circled by the pine-covered hills in close proximity. The fires in the mourners' circle cast weird, strange shadows. About the circle were high poles strung with the gifts for the dead, and the fire light falling upon them showed many strange objects. Outside the circle were crowds of Indians squatting about the grass, playing a gambling game with sticks. There was a subdued, semi-hush over the crowd, low talking, and now and then a long-drawn mournful cry. The mourning circle was enclosed by a rustic fence, and now and again one or two mahalas, with faces daubed with tar, entered the ring. Stooping, they threw ashes over head and shoulders, crying "Hoo-ah-hoo"—as they did so—then passed out to join the group of women outside. When the moon was directly over the fire circle, the "cry" began. This year, because a chief had died, the men mourned too. A circle of men and women was formed, and these went round and round the fires, stamping or dancing and howling unmercifully. It was warm, hard work, and one set of mourners was replaced by another. The gifts, meantime were thrown one at a time upon the fire. From the group of poles hung hams, sides of bacon, loaves of bread, quilts, blankets, laundered white shirts, boots, shoes, coats and trousers. There were fancy bead ornaments, beadwork pincushions, and other things such as no Digger ever made or used. Added to these were bows, arrows and baskets.

This "cry" lasted three nights. We did not wait to see the dog burned, so I do not know whether it was a living sacrifice or not.

It was all of a week later that the last "Ah-hoo" died away in the distance as the Diggers departed, each to his own locality; and many weeks before the stripe of black tar had worn from the mahalas' faces.

ELLEN C. WEBER.

Vancouver, B. C.

PROGRESS OF WORK AT POMPEII

Few localities in the world present a richer or more interesting field for historical and archaeological research; or have a more varied collection of ancient Greek and Roman ruins in such a comparatively small area, as that portion of Italy in and around the city of Naples. It was in this romantic region where the Sibyl conducted the great magician poet, Virgil, into the realms of departed souls; it was here that he gave to the world his immortal epic, the *Aeneid*; and it was the mystical, weird surroundings of this poetic spot that kindled his brilliant imagination to its lofty and sublime conceptions.

In the dim past there were here many active volcanoes that ejected from the fiery depths of the earth great volumes of seething lava and ashes; all of which have long been dormant save the occasional awakening of Mount Vesuvius. All around, the geological features of the ground are of turbulent igneous origin, particularly to the northwest of Naples towards the ancient city of Puteoli. Lake Avernus, almost in the center of this circumscribed territory, was the immediate traditional portal to the infernal regions below. The lake occupied an extinct volcanic crater with dark colored water of great depth, and its steep shores were covered with a dense growth of trees. Noxious vapors arose from its surface, sombre shadows were always upon it, and no sound awoke its oppressive silence. No wonder that it impressed the superstitious with awe and dread. Yet easy was the "descent to Avernus."

Since classic times many changes have taken place in the topography of this part of the peninsula, caused by subterranean forces. Severe earthquakes of frequent occurrence have wrought vast destruction, with alterations of surface levels by upheavals and subsidences. Vesuvius has been particularly active in the latter historic period; but its greatest known eruption was that of the year A. D. 79, which overwhelmed Pompeii, Herculaneum and Stabiae, and buried them in its deluge of scoria, mud and ashes. In one night during the year 1538 a cone-shaped hill, now known as Mount Nuovo, was cast up in Lake Avernus, near

the Bay of Baiae. On the southeastern border of this bay rises Vesuvius, and at its base near the shore are the two buried cities, Pompeii and Herculaneum; and further down the coast is the modern town of Castellamare, built over the site of ancient Stabiae.

Over a hundred years ago the lost city of Pompeii was discovered, and since that time work has been prosecuted, off and on, for its recovery; but not until 1863 was this great undertaking earnestly and systematically conducted, and since continued, by the Italian government. From five to seven hundred laborers, of whom many are women, are daily employed in excavating the solidified mud, stones and ashes, filling it in the cars that glide down an inclined plane towards the bay, where it is dumped, and the empty cars then returned by mule power to be again refilled. In this way a little more than one-half of the town has been entirely rescued from its long, silent burial; and we now see the ruins of a beautiful city of thirty thousand population, with its shops, market places, temples, theatres and private residences; with works of art and implements of artisans, and all the appliances, utensils and paraphernalia that serve to restore the domestic life, daily pursuits, tastes, occupations and pleasures of its people.

A railroad now conveys us from Naples over the six leagues to Pompeii. We there pay two francs and enter the ruins at the Porta Marina, one of its eight gates, and the one opening upon its ancient harbor, now half a mile distant, the space between having been filled in with the material from Vesuvius that buried the city. A polite guide in uniform takes charge of us—to watch us and see that we pocket nothing. To be under no obligations to visitors placards in all languages prohibit us from offering him so much as an obolus by way of a "tip."

The appearance of the old town is what might be expected after a general conflagration. The roofs, joists and all other combustible parts of the buildings have disappeared, and only the portions constructed of stone, brick, metal and plaster remain. Many of the houses are perfect

excepting their destroyed woodwork; but others have tumbled down and are much dilapidated. The streets are very narrow, the principal ones measuring but seven feet in width, and the widest, out in the suburbs, but twenty. Along next the houses is a narrow sidewalk of marble, rough flags, or earth held in place by curbstones, according to the wealth of the property owners who were obliged to build them and keep them in repair. In the narrow streets I noticed ruts, in some instances worn to the depth of six inches in the stone pavement, by the wheels of chariots and carts which must have been in general use. These vehicles could have passed each other only at street corners; or, more probably, all went the same direction on one street and a contrary direction on another. The distance between their wheels was about the same as we have here today. On entering the gates we take the main street leading to the Forum, passing on either side the ruins of small shops of various kinds. Many of them—like the ubiquitous saloons of our cities—were wine shops, their marble counters still bearing the stains of retailed wine, while underneath them, with only the opening, or mouth, exposed, are rows of large amphorae, or earthenware vases, some of twenty gallons or more capacity, in which the tempting beverage was stored.

The first public edifice of note on our way is the Basilica where the law courts were held, and on certain days markets were opened. This ruin is not so imposing as others, but in historic interest is not surpassed by any. At one end of the great hall is the dais, or raised platform from which the judge promulgated the law and rendered his decisions, while beneath its stone floor are several dungeons in which prisoners awaiting trial were confined. The great earthquake of the year 63 had shattered this splendid building; but before the fiery cataclysm of A. D. 79 the wreck had been repaired, and fallen columns restored in more modern styles of architecture. Marble had in many places been replaced by brick work covered with stucco, as we now see it, and surmounted by carved stone capitals in (then) new styles strangely contrasting with those remaining of the old order.

The object of this paper was merely to note the progress made in disinterring the buried city and its treasures of antiquities; but the grandeur of the theme is a temptation to digression that can scarcely be resisted. The temple of Isis where the Egyptian deity was worshipped is worthy of notice; as also is the temple of Apollo, the most magnificent of all in Pompeii, in its center, near the Forum, with its grand marble steps and beautiful Corinthian columns, and its carved pedestals supporting the many statues of their heathen gods and goddesses. Among these is a statue of Mercury regarded as a masterpiece of ancient art. Two theatres and an amphitheatre afforded places for amusement for the people; and all three are in excellent state of preservation, and are fine examples of the prevailing style of architecture of that era. The larger theatre had a seating capacity of 5000; the other but one-third of that number. The amphitheatre is situated in the southeastern part of the city some distance from the present limits of the excavations. To reach it we leave the uncovered ruins and walk some distance over ground that has been in cultivation for fifteen or more centuries, and who knows what treasures lie hidden beneath it? It is within the city walls and in extent is 350 by 450 feet, with seats rising in three sets of tiers above each other, with seating space for 25,000 spectators, and a gallery above extending all around. The scope of this paper will not permit any attempt at describing the Forum, or other public buildings, displaying the finest specimens of ancient architectural art. At the intersection of many of the principal streets were public fountains of marble in different designs, the water escaping from them usually through the open mouth of some grotesque face or head carved on the stone. In many places, along the sidewalks, or bases of the houses can still be seen the lead pipes, an inch in diameter, that conveyed the water from the mountain reservoir to the fountains, and on some are inscriptions denoting their purpose and proper positions.

Many residences have been unearthed containing their furnishings and decorations just as they were when their occu-

pants fled from them terrorstricken. It seems paradoxical, but Vesuvius preserved Pompeii from destruction after having destroyed it. For convenience of description the restored houses have been named from inscriptions found in them; or from the subject of paintings, or ornaments, or other objects discovered in them. Like our residences of the present day these old homes differed greatly in dimensions, architecture and contents. Some are very plain and but plainly furnished. Some of those of the wealthy classes are magnificent in mosaics, statues, sculpturing and fine paintings. All movable articles found in them are at once sent to the National Museum at Naples, where can be seen everything in daily use by the people of the doomed city just as they left them. There are the cooking utensils of bronze, some of them in every respect similar to those in use here today. Stoves for burning charcoal, lamps of many patterns, gongs, buckles for harness and bits for horses, tripods for the support of lamps and wine jars, and great numbers of other things made of bronze, have been taken from the buildings. Even loaves of bread have been found in the baker's oven, and wheat yet unground in the mills. Gold and silver were extensively employed in the manufacture of ornaments, for decorations, and in their arts. Money chests of sheets of metal strongly riveted together and with curious locks were kept in the houses of the more opulent for the safekeeping of their valuables. Surgical instruments and appliances made of silver, some of them the fac simile of those we now have in use, were found in the doctors' shops, together with extensive assortments of drugs and medicines in boxes and jars.

Though almost everything recovered from the ruins is sent to the museum at Naples, the government has near the main gate of the ruined city a small museum with typical specimens of the exhumed relics, and a library of books descriptive of them for the convenience of students, scientists and journalists.

It was a custom of the Romans to bury their dead alongside the main thoroughfares outside of the city walls. Thus, the famous Appian Way leading from the south gate of Rome was lined on either side with the tombs of the great families of that city, dating from the early days of the Republic. Pompeii had its "Strada del Septolieri," or

Street of Tombs, lined on each side with repositories of the dead, some of which are still well preserved and others in shapeless ruins. At some distance out on the "Strada" is the so-called Villa of Diomede with its wine cellar underneath in which the bodies of eighteen persons were found, having taken refuge there from the fiery blast, and perished together. No doubt other roads leading out from the buried town will, when uncovered, be found to be garnished on either border with sepulchres, as is the "Strada," and too, more remains of those who on that awful day fell by the wayside will be encountered. I said that the bodies of eighteen persons were found; but in fact the bodies had long since disappeared, leaving but a handful of dust and some of the bones in the hollow casts that were formed around them by the solidifying of the volcanic ashes and mud in which they were smothered. The expert workmen discover these empty casts by the sound they emit when struck, then making a small opening in this ready-made mould they fill it with fluid plaster which soon "sets" and becomes solid. The mould is then broken off and a perfect plaster copy of the victim, showing the death contortions, and agonized expression of features in the last struggle, remains in durable form. In the museums are these casts of a great number of the unfortunates just as they expired; mothers with their babes pressed to their bosoms; lovers clasped in each other's arms; whole families prostrated together; fugitives overtaken in their flight; pathetic, mute witnesses of the horror of that terrible event.

But little of buried Herculaneum has so far been uncovered, and no effort has been made to dig Stabiae out of its ancient grave. The work of disinterring Pompeii is vigorously prosecuted; but it will be yet many years before the entire city will be cleared of its volcanic envelope, and all of its habitations and public edifices, its treasures of art, and remains of its industries be fully revealed to the world. But enough is now shown to give us a full comprehension of the appalling drama of death enacted there eighteen centuries ago. The imagination can add nothing to its horrors. The pall of death has since enshrouded the ill fated city, and the plaster faithfully depicts the agonizing tortures of its stricken people.

Rome.

T. C. W.

A LEGEND OF THE FRASER RIVER INDIANS.

Very many years ago, in a kingdom which was called Kwatkwa, which means the sea, the inhabitants, who were called Sakwi, mourned very deeply the death of their head, whom they called Niman. But when they met together to elect another niman, they could not agree. So they left it to the Kwanis, the whales, to send them a head to rule over them.

Now, the Sakwi are really salmon, and it was expected that when the new niman arrived, he would be like one of themselves. But the Kwanis either did not know, or had been very much misled, for when the niman arrived in Kwatkwa, although he claimed to be a Sakwi, and said he would rule them just as their very deeply deplored late niman did, yet he was really a Kwatio, which means sturgeon.

Some of the Sakwi found out at once that they had been deceived; but others did not know, or if they did know, they said to themselves: We will not tell, and perhaps the Kwatio will let us eat his leavings, when he has had enough. So they called him niman, and said: Come live with us, your lodge is empty, and our hunting grounds are richer. And he went and lived with them, and the other Sakwi were not sorry.

Now the new niman soon became very hungry, for he was really a Kwatio, which is a very voracious fish, and could not be satisfied with the same amount of food as the Sakwi. So he swam around Kwatkwa, and schemed for more food.

And he was really very hungry, for there had been a famine amongst his own proper food, so that it was very scarce; in fact there was hardly any left in Kwatkwa. But he discovered that there was plenty food for Siam, and for Kulums. Now Siam is the chief of the Tsawhuls, a special race of Sakwi; and Kulums is the prime minister of the Niman in Kwatkwa.

So when Kwatio saw there was plenty food for Siam and for Kulums, and not being very particular what food he had himself, so long as he could get a lot of it, he said to Siam:

"I am very hungry, let me have your Siam food, and I will make you my Kulums."

Now he did not really want Siam for his prime minister, and it is not right for the same Sakwi to be both Siam and Kulums; but he was a Kwatio, and he was very hungry.

Nor did Siam wish to be Kulums, but as he saw the new niman was very hungry, and there was a scarcity of niman food, he agreed for six moons to live on Kulums food, so the niman could have his Siam food. For neither was it lawful for the Niman to be Kulums as well as Niman.

But when the six moons were set, Siam said: "I will be no longer Kulums, for every Sakwi should live on his own food." So he was Kulums, not any more.

But Kwatio had grown to like Siam food very much, and he had neglected to gather niman food; so he would not give it back again, and he appointed another Kulums.

So the poor Siam had neither Siam nor Kulums food, and he grew very dry and small.

Now when the Sakwi heard of this thing, some of them were very angry; but others with whom the Niman lived said: "It is all right." But the former said to the Kwanis: "Why did you send us a Kwatio to be our Niman?" And some of the Kwanis also were very angry, and they said: "We will not have anything more to do with you."

Kwatio was still more angry when the Sakwi complained, and he killed one of their chiefs and drove others away out of Kwatkwa. And after awhile he went to live amongst the Kwanis, and the Sakwi were not sorry. But Siam got very little to eat, and the Sakwi became the driest fish in the sea, and could not get fat, like the Kwatios do.

The above legend pretends to explain why the Sakwi salmon, which are canned on the Fraser river, are the smallest and driest of any salmon caught. Like many other Indian stories, however, it is extremely irrational, and fails in the object aimed at. There are many other similar legends relating to the Sakwi.

WALTER J. WALKER.

New Westminster, B. C.

CORRESPONDENCE.

To the Editor:

I still insist that archaeology, with its kindred branches, is a matter of history—a matter of pre-written history; of “archaic history,” as well defined by yourself; for the science of archaeology, in the first instance, is to connect the discovered ruins of a city, or even the camp site of some savage tribe, with some historic data at hand. The objects found in the region of the discovered ruined city, or village site, assist us to decide if the ruins are those of a historic nation or not; or if the refuse of the camp site bespeak a native or foreign origin. For instance: in the tumuli of Britain and France are found objects of undoubted Roman make; but surely the tumuli of those countries were not erected by the Romans; nor can it be proven that they were still in use by the native tribes there at the time of the Roman conquest.

From all knowledge we have of the matter—I include here the writings of Caesar and the Roman historians—it appears that the tumuli of Britain and Gallia—the great ruin system of Karnac also as an example—had been vacated long before the advent of the conquering Roman legions; and that they were as mysterious to the natives themselves as they were to the Romans upon first beholding them. A similar thing was noticed in America. Here, too, the native Americans—the Indians found here by the white man—were ignorant of the race of people who built the mounds and for what purposes they were erected.

You said, Mr. Editor, in our private correspondence, that Marquette's journeys and observations were not matters of archaeology, but of history. To show that Marquette's journal is of great importance to archaeologists, I quote here a portion of the events under date of November 21st, 1674: “An Indian having discovered some cabins came to tell us. Jacques went with him there the next day. Two hunters came to see me. They were Maskautens to the number of eight or nine cabins who had separated from each other to be able to live. They travel all winter, with hardships almost impossible for Frenchmen, by different roads, the land being full of streams, small lakes and marshes.” Certainly this information is of importance to the most casual relic hunter. Here we have a pretty fair picture of the celebrated and mysterious Mascouten Indians, as Marquette saw them. The place he here mentions is the Kenosha, Wisconsin, region, west of which the headwaters of the Desplaines river—the She-shik-ma-o of the Indians—coming from the west suddenly turns to the southward, after having first received several tributaries from the north where innumerable small lakes, swamps and rivulets abound, being partly in the Fox lake valley. The head of the Desplaines river is near that of Fox river, separated from it by a short portage, as it is also separated from Pike Creek, or the Kenosha. The importance of this topography is at once apparent. The Indians of the Hudson Bay region were also often driven to separating and scattering out in order to support life. Rev. John Trusler, who published in London, 1788, his “Habitat World Described,” says: “The native Indians of this part (Hudson Bay), are of a middle size, copper color, with black eyes and long, lank black hair. They are of a cheerful disposition, good natured, affable, friendly and honest in their dealings. They live in tents covered with moss and deer skins sewed together; and as their time is spent chiefly in hunting, fishing and fowling, they change their habitations according to the plenty or scarcity of game.”

I pronounce a most fervent amen! to all the archaeologist may have to say on the matter of making and selling of bogus Indian relics; but I think it rather too sweeping when considering all crescent shaped flints as bogus. For instance, I consider that class of implements figured by General Gates P. Thruston, of Nashville, Tenn., in his great work on the archaeological remains of his state, as being genuine Indian relics. The “Chicago crescent,” described by myself some time ago, in the Antiquarian, in part

assumes this form, and is of course genuine. I enclose a diagram of a crescent flint scraper found here by myself, and of one found by my brother in Michigan, to show the similarity they bear to the spurious specimen you figure in the July *Archaeologist*.

CHARLES A. DILG.

Chicago, Ills., Station B, Lakeview.

[If articles of Roman manufacture were found in the sepulchres of Britain and France, as asserted by Mr. Dilg, it simply proves the fact that the natives of Britain and Gaul continued the practice of erecting their tumuli after their contact with the Roman invaders; just as the discovery of European made objects in some of our mounds is conclusive evidence that our Indians continued building mounds for some time after the advent of Europeans in this country.

We again repeat that what Marquette did, or the routes he traveled; or what Rev. Mr. Trusler says of the Hudson Bay Indians, as above quoted, have no relevancy whatever to the science of archaeology, though perhaps of interest to the historian, the anthropologist or the ethnologist. Archaeology is the science of antiquities, and, in America, is understood to be limited to treatment of prehistoric antiquities; therefore, with us, archaeology ends where authentic history begins.

In our exposure of so-called "ceremonial crooks" we have been careful to condemn only those manufactured for the purpose of swindling the public. It is a matter of familiar knowledge that Indians employed for rounding arrow and spear shafts and lodge poles curved, concave or crescent-shaped scrapers of flint, and sometimes they broke, or worked, from one side of a flint arrow point a semi-circular notch for such use; but all tools of this kind are seen at a glance to have been designed for cutting or scraping, and are readily distinguished from the spurious "crooks" and "sickles" made by the Robinnettes and sold by their agents.—Editor.]

To the *Archaeologist*:

I have been much interested in the matter of fraudulent Indian relics that your magazine has so timely exposed and discussed—probably more interested personally than you are aware of. In the last number of the *Archaeologist* Rev. H. C. Meredith, of Stockton, California, is very severe on self-constituted experts who "pass on relics," and are too conscientious to endorse evident frauds and cheats. Permit me to explain the cause of this outburst of indignation and distrust of experts on the part of the reverend gentleman. Some months ago he honored me with a letter enclosing photographs representing a very remarkable find of well-wrought chipped implements, somewhat arrow head in shape, but so remarkably curved—"ceremonial crooks," perhaps—that I could not imagine any practical use to which they could ever have been applied. The more I examined the photographs the stronger my suspicions became that the objects pictured were frauds. I ordered one for inspection and received a small specimen for the modest price of four dollars, with the information that they were very rare and not for sale. (He described the find, and in one of his letters said that he had himself been very successful in making arrow heads.)

I cautiously suggested to him that I thought he should be very careful in guarding against deception; that these objects were very unique in form, and that he could not be too careful in accepting objects so extraordinary; but did not intimate that he could be the deceiver. I requested him to send me other specimens of this lot for examination, which he courteously did. On opening the parcel I felt sure that the crooked things were newly wrought. Two spear-shaped objects seemed to have been broken and afterwards worked over. On one of the specimens I noticed a flake had been started which I removed by very slight pressure. It was nearly the fourth of an inch in diameter, and with the newly-worked edges, was to me positive evidence that the specimen had been rewrought; the newly-worked edges and surface being very different to the eye from the rest of the surface. All of the specimens were lightly covered with what appeared to be black soil. I washed this off before detaching the loose flake. I then compared the newly-wrought hook with another newly-wrought obsidian specimen I had received from an Indian, who made a dozen for me.

Having been familiar with obsidian for twenty years, and having worked it myself in the same way and with the same tools used by the Indians, I felt that I had reason to know newly-wrought obsidian at sight. I took the specimens received from Rev. Mr. Meredith to Los Angeles and submitted them without comment to the inspection of Dr. Palmer there, whom I consider the best mechanical expert in this line of my acquaintance. He at once said, "Where did you get these frauds?" We then together went over them carefully; then read all of my correspondence relating to them, and agreed perfectly that they were, some worked over, and others newly made specimens, and very neatly done.

I then wrote to the reverend gentleman our joint opinion that they were frauds; and to this he replied very indignantly, demanding to know by what authority I was an expert, and also my reasons for believing they were not genuine. He said he would submit them to higher authority for examination. I declined to say how I knew them to be frauds, as I was satisfied that he already knew enough of my evidence. I then waited some time, hoping he would send for the opinion of some competent expert to rebut my judgment, or confirm my view; but he now stands on his silent dignity, refusing to tell me anything more.

I have now given you all the material facts, and ask that you publish this, and request that he will send the same specimens in controversy to you for examination. For if I am wrong I desire to be corrected, and if he is in error he ought to be willing to be corrected.

South Pasadena, Cal.

HORATIO N. RUST.

[Not to evade an unpleasant responsibility; but for the better satisfaction of all concerned, we would suggest that either Dr. Thos. Wilson or Prof. Holmes, of the Smithsonian Institution—among the highest of American authorities in such matters—be selected as umpire in this case. If, however, it should be submitted to us we will not hesitate to render an unbiased decision to the best of our judgment.—Editor.]

Editor Archaeologist:

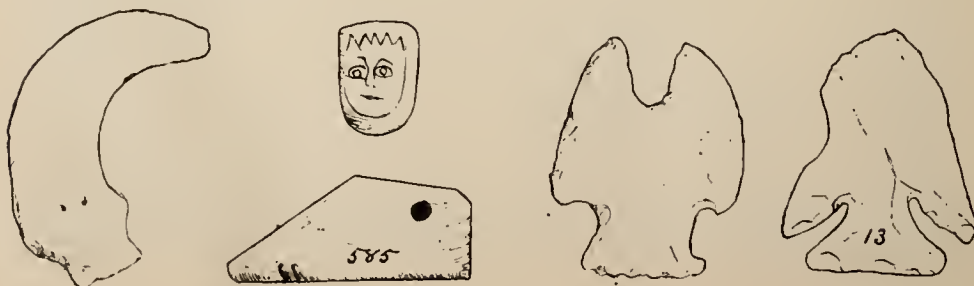
On page 190 July Archaeologist is a note by the editor (in answer to Mr. Younglove's query as to whether there are any genuine crooks), stating that not one of the so-called ceremonial crooks are genuine Indian work. I illustrate for the benefit of the readers of the Archaeologist a crook (two-thirds size), which was found in a field near Bourneville, Ross Co., O., a few weeks ago, by a little colored boy, who sold it to Mr. A. W. Streitcher, a local collector at Bourneville, for five cents. This specimen was kindly loaned me to examine and photograph and I have no hesitation in pronouncing it genuine Indian work.

I received a package last spring from L. W. Stilwell, Deadwood, Dak., which contained a number of obsidian points and a ceremonial teem crook which he priced at one dollar; the crook and several of the points I judged to be fraudulent, so mailed them back to him. While I do not think Mr. Stilwell would knowingly sell bogus goods; yet with his experience in handling thousands of specimens he should not allow such specimens to escape unobserved.

In an exchange with a gentleman in Indiana, I recently obtained fifty arrow and spear points, among which I found six "Ohio bird points" that were undoubtedly frauds, yet fine specimens and hard to detect.

My attention to the Sidney, O., points was called by Dr. Loveberry's remark that enough Ohio bird points could be obtained at Sidney to supply every collector in the state, and he then pronounced them frauds. As I had twelve points which I purchased for sixty cents from Mr. Heston, and as I wash all my specimens before placing in the cabinet, I found when I tried to wash them that they were covered with a liberal supply of yellow clay, and under the clay a smoky, greasy substance which would not wash off. So I gave them a bath for ten minutes in a hot solution of concentrated lye, after which one could see fresh fractures. Several of them had been made from tips of genuine points and the notches recently chipped in and the end, where broken, chipped down to the desired edge.

I have no specimens for sale, so do not hesitate to say that I have in my collection one sandstone pipe and eighteen bird points of modern workmanship (see illustration of fraud pipe which is one-seventh size). The pipe has the appearance of age and came from Fayette county, Ohio.



I have several specimens in my collection which I am at a loss to classify.

Specimen No. 13 at first glance looks to be an arrow point slightly damaged on one side; but on closer examination the notch at the left is chipped in purposely and with the base of the point shows wear. The notch resembles the Chicago crescent, of which Mr. Dilg gave a good description in the *Antiquarian*.

Specimen No. 585 is one-third actual size, made from banded slate, and like most articles made of this quality of slate, shows fine work. The top, bottom and ends have perfectly flat surfaces, while the sides gracefully curve to join the edges. On the bottom, or longest plane, at the distance of three-fourths of an inch from the point is two small polished grooves extending across its surface and shows signs of considerable wear. The short plane at the top has eighteen notches on each side; some of which extend across the top.

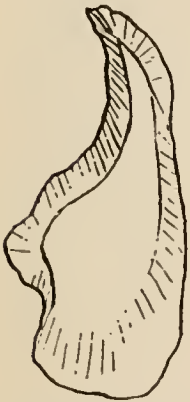
The hole near the end was evidently used for attachment by a string, as it shows considerable wear, as if suspended point downward. By holding it between the thumb and second finger, allowing the forefinger to extend along the top and down the incline, it places the grooves at the bottom, and in such position would serve admirably to polish strings made from skins.

I give an illustration of a double pointed specimen which belongs in the cabinet of Capt. C. W. McGinnis, of Frankfort, and which we are unable to classify. The above three specimens were found within a couple of miles of here and are curios to this section of the state.

A. B. COOVER.

Roxabell, Ohio.

Editor *American Archaeologist*:



Every honest collector of Indian relics must commend the stand you take against the manufacture of and dealing in spurious goods to represent the handiwork of pre-historic man. I note your answer in *July Archaeologist* to George S. Younglove's inquiry about "crooks"; but can not say amen to your conclusions in regard to all of them. I have several fine crooks in my cabinet that I bought from dealers who have a good reputation for honesty and ability in their line, and until reading your fiat, "they are all bogus," had no reason to doubt that they were Tennessee mound finds as represented. The valley of the Ohio river is a rich field for the student of archaeology. Within a radius of twelve miles of this place there are found on either banks of the river numerous ancient village sites. At these places one sees burnt and broken stones, flint chips, pottery fragments and broken stone implements and occasionally a whole arrow, spear or axe. While back of them near the hills are burial mounds of stone and dirt. About fifteen years ago your correspondent got "the craze" by a rich strike made at Shippingport, Pa. While sauntering along the river bank, my attention was attracted by a peculiar looking object sticking out of

the bank, where the latter had recently broken off by the action of a high river. A close examination showed it to be the skull of an adult. While digging around it with a barrel stave a skeleton of a child of seven years of age was also uncovered. With the neck bones of these Indians were over two hundred wampum beads and several shell ornaments. I called a local collector in and exhibited my find with a great flourish. The next day this collector invited me to his buggy at the door to see some twenty odd celts, axes, spears, etc., that he had got by digging around my find. Since that time my brother, James, and I have kept a pretty close eye on that bank. After every flood recedes, one of us, and sometimes both, go up there to see what the high waters have uncovered. St. Patrick's day my brother found eight skeletons there that a large cave-in had laid bare. They were all thrown together as if they were poor, no account Indians. There were no relics found with them. I started out to tell you that I have a crook that is not bogus; but have digressed a little to show you the character of the place where it was found. On the morning of the 7th inst., James and I mounted our bikes and started out, he to Shippingport and I in another direction.

That evening he had among other finds a crook that he got from the bank near where the skeletons were that he found on the 17th of March. The outline herewith of it tells the story. It is not as fine a piece of workmanship as the other ones in my case; but it is a crook, and it is of ancient Indian make. My brother and I have found three red hematite stones at different times, at the lower end of the Shippingport banks. They are about the size and somewhat the shape of a goose egg. They are "worked" by some rub-

bing process. I have hematite celts, plummets, cones, etc., but never saw anything like these before. I have labeled them hematite paint stones, as they look like they had been rubbed for the red paint that they would yield.

HAMLIN BARNES.

Wellsville, Ohio.

[There is a marked distinction between indented, or concave scrapers of flint and the bogus "ceremonial crooks" that is very apparent at sight, and requires no expert to determine. The first have cutting, or beveled edges and were made by Indians for use; the others are well finished, more or less rounded on the concave side, and were made by white rascals to deceive honest people. You are correct in naming your round, or conical hematites "paint rocks." By burning and grinding they yielded red paint. —Editor.]

Editor Archaeologist:

I notice an article in your July number by one George A. Younglove adverse to myself as a dealer. Mr. Younglove is a perfect stranger to me. He should know my reputation thoroughly and whether I would intentionally sell bogus relics before he makes reports intimating fraud. I had a little correspondence with him and wrote him fully regarding the relics in question and possibly he did not receive my letter. No one who knows me would accuse me of ever palming off bogus relics for genuine on anybody.

I may be green or over-credulous, but I am not a fraud, neither have I ever had fraudulent intentions. It would not be strange with advertising and the wide correspondence I have had, receiving relics from every quarter of the U. S. and carrying one of the largest stocks and varieties of every type to be had, that sometimes I should have sent me without previous knowledge, a bogus relic, for I am subject to letters and shipments from all classes of men and boys. I profess to know something of relics I have handled a great many of, but when a new and rare object is presented, and I have nothing for comparison I have to take appearances and the word of the sender. I do not profess to be infallible or a great expert as some do. I am sometimes deceived, even after 15 years of experience, as I have known bigger men than myself to be. That there are some few frauds making imitations of relics I have proved several times in past years, and I have invariably sent them back when I judged beyond doubt or was satisfied that they were wrong. But I never yet was able to absolutely prove or learn who made them. Some of the senders were innocent parties who had themselves been deceived. I had seen "crooks" that came from very reliable men, a very few whose word is as good as law, and when some were sent to me for purchase I supposed they were all right, and was assured in strong terms that they were. I see now a strong suspicion of a lot of imitations thrown upon the market by a Virginia party, and there are those who seem sure that the party heralded so freely made them. If this can be proved I am ready to join your ranks. Fearing these suspicions may be sustained, and observing the positive assertions of some of the articles, I have arranged to return all on hand to the senders. I will confess, as any one must of even large experience, that these crooks are cleverly made, and have that smooth and old appearance calculated to deceive the very elect. I have in several instances, as when I received a fraudulent pipe or mound relic, tried to learn from neighbors or references as to the shipper's guilt, and never once in all these years have I gotten positive proof against the parties. I am therefore cautious about making assertions as to the person suspected, for it might prove a libel and be expensive for me.

As to the coppers Mr. Younglove makes so much of. That is easily explained. I have never gone into coppers as a trade until recently, and unfortunately I did not know them, and took the word of a farmer who claims to have a large collection of relics, and the very first deal I seem to have been taken in. I have never purchased a dozen copper spears altogether, and it seems I was deceived on the first deal, and Mr. Younglove happened to get them. I have since compared them with genuine ones I sent for and see the difference. They will not be offered for genuine again, and now that I have had my eye-teeth cut on coppers I shall buy only those I get from expert reliable collectors. And I shall also go for the parties who sold me the eight or ten which have already humiliated me. My motives are always to keep my trade pure and to offer only genuine relics, and I have sold perhaps more than most any dealer in the country, and never have I intentionally offered frauds knowingly.

This vindication is intended for those of your readers who do not know me; those who know me best do not need it.

When I can give you any information that will be helpful towards ridding the field of frauds I shall gladly do it, but I may not be expected to publish names and make positive assertions and run any risks of imputing false intentions to possible innocent parties, as Mr. Younglove's hasty report was calculated to act upon me.

Deadwood, S. D.

L. W. STILWELL.

REMARKS REGARDING JADE IN BRITISH COLUMBIA.

Judging from the letter entitled "Reply to Mr. Harlan I. Smith," in the June number of *The American Archaeologist*, at least one person seems to have misunderstood my letter in the March number of the same journal. To it I beg to refer those interested in the matter.

In it I have not stated that there was no jade at or from Lytton, that Dr. George M. Dawson was mistaken; or that the collection which Dr. Dawson saw in Vancouver contained no jade. I merely put on record the fact that the specimens which I collected at Lytton, B. C., that have been passed on by experts, prove not to be jade. By jade I mean jade.

The reply above mentioned does not in any way disprove my original letter in the March issue and seems to be directed to various other matters under the caption of a reply.

HARLAN I. SMITH, American Museum, New York.

EDITOR'S DEPARTMENT.

DR. J. F. SNYDER, EDITOR, - - - - - Virginia, Ills.
 PROF. A. F. BERLIN, ASSOCIATE, - - - - - Allentown, Pa.

All communications for the Editor must be addressed to Dr. J. F. Snyder, Virginia, Cass Co., Ills.

With the return of peace; the civil status of Cuba restored, and a stable government established ensuring safety of transit and residence throughout the island, the Queen of the Antilles may offer, with other inducements to American enterprise, a new and interesting field for archaeological investigation. When discovered by Columbus, on his first voyage, in 1492, he found there a dense population of naked savages living by hunting and fishing, and on the spontaneous vegetable products of nature. Believing that he had discovered India, the object of his voyage, he named the natives, Indians; a misnomer that no subsequent knowledge gained of them has served to change. Columbus and his men were too eager to find gold to waste any time in studying the habits and characteristics of the swarthy islanders. The brutal Spanish colonists who soon followed him, also wildly intent upon the acquisition of gold, and finding none, enslaved the poor, defenseless aborigines, who rapidly succumbed to the cruel treatment of the invaders, and their enforced change of conditions, and in a short period of time became extinct.

Las Casas, who gained the high-sounding title of "The Universal Protector of the Indians," moved by impulses of genuine humanity and sympathy, exerted all of his influence and power to ameliorate their sad condition and shed over them the benign radiance of the church; but while comforting the oppressed wretches with the rites of baptism, he was impotent to stay their destruction; but in time enjoyed the satisfaction of seeing his suggestion adopted of supplying their places with negro slaves imported from Spain. Of the hordes of merciless Spanish adventurers who overran America after Columbus had opened the way to it, Las Casas was one of the very few among them who recognized the Indians as human beings, and deserving of kindness and sympathy. But he was a fanatical zealot whose benevolence was wholly subordinate to, and bounded by his loyalty to the Holy See and the Spanish crown; and, during the years of his intimate association with the Cuban Indians though he gained extensive knowledge of their language, customs, mythology and traditions that would now be of great value to us, this knowledge of the heathen, balanced in the scale with the general scramble for wealth, was of small moment, not worth preserving, and perished with him.

The countries bordering on the Gulf of Mexico, from Florida all around to Yucatan, have been well searched for remains of their aboriginal inhabi-

tants; and the results of repeated explorations in all that territory are generally known; but the island of Cuba, with an area almost equal to that of Ohio, has been almost totally overlooked by archaeologists. We have never heard of a Cuban archaeologist, either native or Castilian—though such may exist. As is generally known, a chain of mountains runs through the length of the island, with peaks from two to eight thousand feet in altitude, and with lateral high, rocky escarpments here and there fronting the sea. Among the ledges and stratas of this remnant of a sunken continent there doubtless are numerous clefts and caverns to tempt some future Prof. Mercer—or the one now with us—to probe their floors, with pick and shovel, and bring to light the camp refuse, implements, and human remains—it may be—of ancient Cuban troglodytes. What surprises for the diligent enthusiast may now be hidden in those unknown caves concealed by the tangled tropical vegetation! May they not reveal the cradle of the mighty Tzental culture-hero, Votan; or the birth-place of Quetzalcoatl, the Mexican war god! Or there may be discovered there the starting point of the Totonacas, who, according to their traditions, set out from a place called Chicomoztoc or “Seven Caves,” together with the Xalpanecs, and voyaged or traveled to the valley of Mexico! Who knows?

We have yet to learn if the primitive Cubans were mound builders, having affinities of habits, language and customs with the Indians who reared the great Etowa pyramid in Georgia; or with those who made the immense shell heaps on the St. Johns, in Florida; or, if they were the progenitors of the strange people who erected the stone temples of Yucatan and Chiapas, whose culture has astonished the world. Thus it is, that with the restoration of peace, Cuba may present to the scientist as weighty problems concerning early man in America for solution, as will be the grave political questions she will submit for Uncle Sam to decide.

Notwithstanding the very general absorption of public interest in the progress and final results of the war with Spain, to the neglect or exclusion of all other matters of minor importance, the Omaha Trans-Mississippi Exposition has, contrary to the expectations of many, proven quite a success. Of its many attractive features the one of most value to anthropologists is its government exhibit of Indians. For this display congress specially appropriated the sum of \$40,000, “to be expended in creating at Omaha the rarest ethnological exhibition ever attempted in this or any other land.” The Indian department at Washington, in concert with the Exposition managers, has brought there representatives of all the tribes, and remnant of tribes, of now existing American Indians in the United States, and situated them as nearly as possible in their native conditions; dwelling in their skin lodges, brush wigwags, bark wigwags, etc., where, dressed in their own native costumes, they pursue their usual routine manner of life, speaking their respective dialects; and illustrating their tribal customs, dances and religious rites; and using their savage weapons, utensils, ornaments and ceremonial objects. Each tribe attempts to reproduce the natural surroundings of its home by the lakes and rivers, on the plains, or in the forests and mountains; and repeats their solemn festivals, their games, courtships, marriage ceremonies, and funeral observances. The advancement towards enlightenment and citizenship of the more civilized Indians is shown by the work they have accomplished in the government schools and shops and fields; by their remarkable aptitude for industrial arts, and their ready and intelligent adaptation of our economic appliances and social organizations.

Just how far this transformation of characteristics, or change of ingrained nature, can be made permanent and transmittible without amalgamation with a higher race, remains to be seen.

The managers of this Indian exhibit, in their circular, say: "It is the last opportunity of seeing the American Indian as a savage, for the government work now in progress will lift the savage Indian into American citizenship before this generation passes into history, and the onward march of American civilization and American industry will wipe off the maps of the United States the Indian reservations and wipe off the face of the earth the reservation Indian."

War is inevitably a calamity, to victors as well as to the vanquished, even in its mildest aspect and though waged in the most righteous cause. The brief contest we have been engaged in with Spain, although conducted beyond our shores, and crowned with victory and military glory, has nevertheless caused much suffering, many hardships, misfortunes and untold wretchedness. The material successes achieved have been gained at the expense of hundreds of valuable lives and millions of money—as in all wars—and their brilliance has been clouded by business sacrifices, increased taxation and indebtedness, trade depressions and financial stringency; resulting, with many, in intensifying the struggle for existence. We all rejoice that the conflict has ended. The territory, and national prestige acquired will in time repay all losses incurred; and the world will have a more exalted estimate of the courage, force and greatness of our people.

In the internal or domestic economy of our country the war has operated in affecting very differently different interests and industries, illustrating the fact that there are but few evils without some compensating good. It crushed some with intolerable burdens and destruction of remunerative business, while it enriched an army of lucky contractors and ship owners, and made happy a horde of political and military aspirants. It dampened public interest in literature and the progress of all sciences but those auxiliary to war and navigation; but created a rich harvest for newspapers. It pretty effectually squelched popular taste for archaeological studies and mound explorations. Students of antiquities became so engrossed in the mechanism of contact and cable mines, the Mauser rifle, brass-coated bullets, and the great 6, 8 and 13 inch guns of our war vessels, that they looked upon the rarest prehistoric Indian relics with the same indifference, if not contempt, that they would view the old matchlocks, pikes and blunderbuses of the fifteenth century. And a few of them, so hungry for war news, came to regard their favorite journal, *The American Archaeologist*, as dry and insipid as *Burton's Anatomy of Melancholy*. But then; while archaeology has been obscured by war clouds and the smoke of battles, it is quite a comfort to know that the same sentiments of patriotism and enthusiasm for the valor and success of our heroes on land and sea, were as effectual in relieving the country of morbid interest in base ball, rowing, prize fighting, golf and the many other non-intellectual and foolish means of wasting precious time, that heretofore have so largely absorbed the attention of certain classes. With this great social benefaction, that should be made permanent, we can endure with equanimity our temporary eclipse, conscious that a return to the old order of things will bring a renewed and freshened interest in the lofty work to which we are devoting our energies—the natural history of man, and his early life in America.

Those who have studied archaeology as a science and are learned in that science, have never looked with favor upon the venal retail traffic in prehistoric

archaeological remains, which has now become so common; and very few, if any, of this class are engaged in it. Relic traders, as a rule, are not selling Indian relics to advance science, but simply for the money there is in the business; consequently, anything that will sell is perhaps not very closely scrutinized, and may be genuine, or may not. The demand for archaeological specimens has induced men not concerned in science to buy and sell them; and it has also stimulated the cupidity of another class, unscrupulous and, generally, illiterate, to manufacture and put upon the market imitations of objects wanted by students. It is this degrading, criminal business we are earnestly trying to suppress. Says Prof. Moorehead: "These frauds ought to be stopped; but I can't see any remedy unless collectors stop buying of dealers, and increase their collections only by work in the field, and buying only from original finders." This is good advice; but unfortunately not always convenient of adoption. We cannot all be relic hunters, and neglect our avocations to roam over the country in quest of relics; or of persons who have already found them. If, then, the relic dealer must be resorted to, the only safe plan to adopt, to guard against possible—and very probable—deception, is to examine the objects wanted before paying for them. And, if upon examination, there is uncertainty, or suspicion of fraud about any specimen, submit it to the inspection of a reliable expert, or subject it to the action of a strong caustic solution and then put it under the magnifying glass. If buyers will observe these precautions they will soon clear the market of "ceremonial crooks," freshly made obsidian implements, fish and bird head "bowstring reducers," and other spurious trash.

Hubert Howe Bancroft, the learned historian of the Pacific States, is now a citizen of Chicago, having removed from Cambridge, Mass., during the present summer. The Bancroft Publishing Company has also removed from its old location, on Fifth avenue, New York, to the Auditorium building, Chicago.

No class of prehistoric Indian relics are of more value than images of clay or stone; for they, above all others, exhibit the highest perfection in art attained by the aborigines, and often reflect their finer sentiments and religious motives. In this view the initial paper of this number of our magazine, on Ancient Stone Images in Tennessee, by Gen'l. Gates P. Thruston, will be found of exceptional interest.

BOOK REVIEWS.

Among our best exchanges is *Our Animal Friends*, a monthly magazine published at Madison avenue and Twenty-sixth street, New York City, by the Society for the Prevention of Cruelty to Animals. It is well illustrated, and its reading matter, both entertaining and instructive, of high order, appeals to the finest sentiments of human nature. Its subscription price is one dollar annually. It should reach every home in our country and be placed in the hands of every child who has learned to read; for its mission is to teach kindness and humane treatment to animals; and this should be early taught to all children, who are all naturally cruel and unfeeling. The society represented by this publication is deserving of the gratitude and highest praise of the public for the noble work it is constantly doing to mitigate the hard lot of poor dumb creatures in the great city. "During the past year," the President of the society says in his recent report, "the society prosecuted in the courts 618 cases of cruelty to animals; through its interference 3491 disabled animals were temporarily suspended from labor; 3067 horses, mules and other large animals, disabled past recovery, were humanely destroyed, and 563 disabled horses and other large animals

were removed from the streets in the society's ambulances; 27,832 diseased, starving and homeless dogs, and 59,096 cats, were taken to our shelter; 1740 lost dogs were restored to their owners, and homes were found for 642 dogs and 165 cats. During the year 1897, 49,215 cases were investigated. In addition to its permanent headquarters the society maintains an ambulance house at 111 and 113 East Twenty-second street, and a Shelter for Animals at One Hundred and Second street and East River, New York; an office at 13 Willoughby street; an ambulance house at 114 Lawrence street, and a Shelter for Animals at the corner of Malbone street and Nostrand avenue, Brooklyn. In the greater city of New York it maintains a uniformed force of twenty salaried special agents, and in other parts of the state it has 175 volunteer agents. In the prosecution of its work the society has in constant use three large ambulances for the removal of large animals, and eight smaller ambulances especially constructed for the removal of sick, injured and homeless small animals. Twenty horses and a large corps of men are employed in this service. The work of the society is educational, as well as practical, and during the year 1897 the society distributed nearly ten millions of pages of humane literature."

And all of this benevolent work has been done, and is constantly being done, by a society that receives no aid from the treasury of either the city or the state; and is sustained altogether by subscriptions, donations and bequests by humane and generous individuals. It would be well if a branch of this society could be established and maintained in every city, town and village in our country.

The Connecticut Quarterly for July, August and September sustains well the high standard of this excellent publication. As usual, it is finely illustrated and printed, and is filled with matter of literary merit and local historical value. The initial paper of this number is a sketch of the town of Washington, in Connecticut, by Dwight C. Kilbourn; followed by the conclusion of Mr. James Shephard's history of The Tories of Connecticut. There is an account of the defenses of New Haven in the Revolutionary War, and in that of 1812, by M. Louise Greene; Some Common Evidences of Glacial Action in Connecticut, by W. H. C. Pynchon; Peter Parley as known to his daughter, Emily Goodrich Smith; and several other papers and poems of considerable merit. Beginning with the first of next year the *Quarterly* will be published monthly with the new title of *The Connecticut Magazine*.

Certain Aboriginal Mounds of the Coast of South Carolina; of the Savannah River, and of the Altamaha River. Recent Acquisitions. A Cache of Pendant Ornaments. By Clarence B. Moore, Philadelphia, 1898.

The author of this volume, Mr. Clarence B. Moore, has done, or caused to be done under his immediate supervision, a greater amount of mound exploration—of actual excavating and dirt-removing—than any other individual in the United States. We have before noticed the great extent of his investigations of huge shell and sand mounds in Florida and Georgia and the valuable results of all that immense labor. The publication indicated by the title above stated comprises a report of his later work extending from the Altamaha river in Georgia to St. Helena Sound in South Carolina. It has but recently been issued in royal quarto form, uniform with his other splendid reports previously published, illustrated, as they are, with numerous cuts, diagrams and maps. A curious find of Mr. Moore's was the remains of a house at the base, and a little to one side of the center, of a large oval mound 150 feet long, by 100 feet wide and 14 feet high with flat top. The walls of the structure, of clay, several inches thick,

and nine feet high, were still intact bearing the molds or impressions of numerous posts and cross stringers that supported them; now all decayed and gone. The house was 35 by 41 feet, nearly square; but its roof, probably of bark or palm leaves, had all disappeared. In the center was a large fireplace; and between it and the wall on one side, a few inches beneath the dirt floor he found the skeleton of a young child. The house had been filled completely inside with oyster shells and for some distance around oyster shells had been piled up, neither broken nor burned; and over this the huge mound had then been erected. At the base of another mound, among several buried human skeletons he exhumed the remains of two dogs, each occupying a separate grave.

We have not been advised as to the extent of editions of Mr. Moore's several reports; nor do we know if they are offered for sale to the public; if not, they should be; for, in our opinion, they are indispensable in the study of prehistoric American archaeology.

SOME EARLY LOCAL FOOTPRINTS.

In the May number of *The Archaeologist* we noticed the concluding sketches of this series, entitled "Our Savage Predecessors," descriptive of many of the local footprints, or remains and reminiscences, of the early natives who were sovereigns of northern Indiana before the intrusion of the whites. These historical sketches of the St. Joseph valley, especially of that district about its great southern bend, by Hon. D. R. Leeper, originally published in the *South Bend Daily Times*, have been reprinted by the author in handsome quarto pamphlet form, profusely illustrated, for private distribution. The first paper of the series recounts many interesting incidents connected with the later occupancy of that region by the Pottawattomies, and of their social status in our pioneer days; the efforts of missionaries to improve their condition; the cession of their hereditary domain to the United States, and finally their deportation in 1837, to reservations west of the Mississippi, leaving behind a small remnant whose descendants are yet there. The victorious and superior race has long since magnanimously forgotten its enmity to the exterminated Indians, whom it crushed and despoiled, and, with the passing of time, the fading vestiges of savage life yet spared by civilization's ruthless forces and changes—their graves and village sites and rude implements—are enhancing in melancholy interest. Old Chief Pokagon died many years ago and has almost passed into oblivion; but the place where his village stood is historic ground hallowed by memories of a rapidly receding past.

In another series of these valuable sketches on the Notre Dame lakes, we have, with narratives of pioneer trials and troubles incident to settling in the wilderness, the history of founding the famed Notre Dame University, in 1842, by Father Sorin, a French missionary, and his brothers, of St. Joseph. Its subsequent marvelous growth and prosperity are familiar to all; as is also its transition from an elementary missionary school of French priests to a distinctively American educational institution of the highest class. Father Badin, however, was the first ecclesiastic to locate at the beautiful Notre Dame lakes, in 1830, as a missionary priest and teacher for the Indians; and there he secured the land, and laid the foundation of the future great seat of learning by erecting a structure of logs, twenty feet wide by forty feet in length, a story and a half high, that served at once for chapel, school house and dwelling. From such humble beginnings have grown the greatness of America as well as the strength of its educational institutions.

Mr. Leeper is already known to the public as an author and cultured writer, and as an able statesman and successful business man. He has favored *The Archeologist* with several ethnological contributions of interest and value; and all of his versatile writings have attracted wide and marked attention.

NOTES.

Maj. J. W. Powell, for many years at the head of the United States Bureau of Ethnology, says: "Many attempts have been made to prove that aboriginal America was peopled from Asia by way of Bering Strait, and a vague belief of this nature has spread widely, but little scientific evidence exists to sustain it. On the other hand, investigations in archaeology have now made it clear that man was distributed throughout the habitable earth at some very remote time or times, in the very lowest stage of human culture, when men employed stone tools and other agencies of industry of a like lowly character, and that from this rude condition men have advanced in culture everywhere, but some to a much greater degree than others. The linguistic evidence comes in to sustain the conclusions of archaeology, for a study of the languages of the world leads to the conclusion that they were developed in a multiplying of centers; that languages of distinct stocks increase in number as tribes of lower culture are found, and that probably man was distributed through the world anterior to the development of organized or grammatic speech.

Dr. Franz Boas, in charge of the ethnological collections of the American Museum of Natural History and leader of the expedition to British Columbia last year, said a few days ago:

"It is not possible at present to speak with confidence as to the comparative ages of the several races that have lived on this continent, or to say much about their mutual relationship. There are now in North America several different types of Indian. These may be designated as the Northeastern, the Esquimaux, the Mississippi, the Sonoran, and the Caribbean, or Southeastern. If they have a common origin, this must date a long way back.

"In regard to the relics found in the Trenton gravel, it appears to me that the wisest thing to do is to suspend judgment for awhile. I do not think it unreasonable to expect other discoveries of a similar character elsewhere on this continent. It would not be safe to consider this one the only possible deposit of its kind. We may yet find much evidence of glacial man in America.

"That which distinguishes man from the next lower order of animals is his power of speech and his use of implements. Hence the anthropologist, in his researches, looks for the tools, traditions, and language of living and extinct tribes. This is the material on which we base our conclusions. The distribution of tales among the races is an important phase of human culture which we study with care. In fact, culture phenomena are highly significant. Nevertheless, they do not always prove that one tribe or nation is descended from or closely related to another. Ideas are often communicated by the contact of two very different peoples, and they sometimes arise independently in different tribes."

The Jesup expedition, which visited British Columbia last summer and fall, brought back an immense collection of masks employed in ceremonials, household articles and relics obtained from burial places. These have now been arranged in cases on the ground floor of the north wing of the American Museum of Natural History, and form a splendid addition to the nucleus afforded by the Emmons collection and Peary's anthropological exhibit. The British Columbian Indians differ in several respects from the Alaskan tribes. Among the articles brought back last year were carved clubs of bone or antler, copper ear and hair ornaments, and skeletons.

A grotesque feature of the collection is a lot of masks used by the Bella Coola Indians in some of their ceremonies, and associated with their religion. These are of wood, carved, decorated in curious designs with color, and sometimes representing an animal or bird. The Bella Coolas believe in a number of deities who live in a house located in the zenith, and which is called the House of Myths. Their chief is the "One who must be worshipped," the sun. His brothers and sisters assist him in ruling the world. They do not directly interfere with the destinies of mankind, but their thought is put into execution by four brothers, who are called collectively the workmen. These latter are entitled, "He who finishes his work by striking once," "He who finishes his work by rubbing once," "He who finishes his work by splitting once," etc.

Among the other masks from Bella Coola are an eagle head and wolf head worn by the cannibal dancers. It is explained that, according to the mythology of this locality, the desire for human flesh is produced by an animal spirit, who is supposed to possess the dancer. At the end of the ceremonial the dancer is restored to his senses by exorcising the animal, which is then shown to the public. The body of the animal is made up of skins. The dancer holds its head under his left arm. Then the assistants squeeze out of its mouth a mixture of flesh and blood, making the uninitiated believe that the cannibal is disgorging human flesh eaten by him. Other masks are worn

by the fool dancers, whose members, during their moments of ecstasy, are possessed of a desire to destroy property. They are supposed to be initiated in heaven. These and other items in the Jesup anthropological collection are interesting from a popular point of view, but their real significance is appreciated, of course, only by experts.

Two parties of scientists visited New Mexico last year, with the intention of ascending, if possible, the lofty plateau of Katzimo, also known as the "enchanted mesa," which rises from the plain near the village of Acomas, in Western Central New Mexico. This pueblo, by the way, is said to be the oldest settlement, occupied continuously to the present day, anywhere in this country. One of the visiting parties, led by Dr. F. W. Hodge, of the Smithsonian Institution, found interesting relics of the former occupants of that long-abandoned place of residence. In the old days the mesas were favorite sites for pueblos. Plateaus which were inaccessible except by ladders or handholes cut in the rock afforded an admirable refuge against hostile invaders of the plains below.

"Let us turn," said Dr. Daniel G. Brinton, professor of Archaeology in the University of Pennsylvania, in a recent lecture on the origin of our aboriginal people, "to the great Waya stock of Yucatan, Tabasco and Guatemala, the most cultured of all the American race, and seek in them to measure the march of progress. But at once we are checked, for in their own authentic traditions they acknowledge that their glory had departed and their golden age closed with the destruction of the federation and the fall of their capital, Mayapan, about 1420. If we wish confirmation of this we have it in the undisputed fact that their glorious city of Palenque was an untenanted ruin in 1522."

Of the four centers of civilization in South America discussed by this eminent ethnologist, at least three existed in Peru. The other one was in the northwest corner of what is now the Argentine Republic. Colossal stone edifices, sculptures equaling or surpassing those of Egypt, and vast irrigation works are among the expressions of these ancient South American types of culture.

The latest and the most modern anthropologists rather avoid either an intellectual or a physical criterion of race. As the zoologist divides the face of the globe into certain faunal areas, so the modern anthropologist has concluded that he would better be cautious about physical and mental criteria, and take geographical areas, preferring to speak of the American race rather than of the red race, or the straight-haired race, or the incorporative-speaking race, because all those offer exceptions; but if he says American race it means but one thing—the people that lived originally in America.

Prof. Daniel G. Brinton recently delivered at the Academy of National Sciences, Philadelphia, a lecture on the division of the human species into races, and the principles upon which that division has been made. An abstract follows:

A white man does not grow black, a black man does not become a white man; and the children of the white remain white, while the children of the black remain black. This hereditary trait has been preserved ever since history took up the thread of human life. In prehistoric times, even, we find paintings upon ancient Assyrian and Egyptian monuments, dating back six or eight thousand years from the present time, depicting the races of man as distinctly outlined as if done by artists to-day; so that there has been no change during that period in the main characteristics of the races.

The Chinaman in our streets has a color of his own, which is that of his nation, and has been hereditary in that nation time out of mind. So, too, the American aborigine has his own color—copper colored, red, cinnamon colored, as it is variously termed, a color hard to describe and yet the same everywhere. Whether in North or South America, on the Atlantic or the Pacific shore, the Indian, with very slight differences in shades, has always the same ground tone.

There is another and an obvious trait—a wig of hair with nothing beneath would indicate at once whether it came from the head of a negro or a white man, an Indian or a Chinaman. The woolly, fuzzy hair of the negro, the straight black hair of the Indian, and the wavy, various colored hair of the Caucasian or European are distinctive marks.

The shape of the skull has been and is made a basis for the classification of races by a great many writers. The medium skull of 100 units long and 80 units wide has been generally adopted among all craniologists, who adopt the variation in the form of the skull from this mean as a criterion of race. When it is 85 to 90 wide it is a broad skull, when 75 or 70 wide it is called long-skulled, because then the long diameter is greater in proportion to the short one. It is proposed to divide the whole human species into races depending upon the proportion which these two diameters bear in the skull; and it

works pretty well. One hundred skulls from almost any of the black tribes of central Africa will appear long in rather an extravagant degree. A hundred skulls from pure Chinese will appear round; and that is a general test of race when measuring hundreds of skulls at a time.

Dr. Harrison Allen, in examining the skulls from the Sandwich Islands, found they presented two quite different characteristics. The higher type of skull (that approaching the European standard), was found to belong to the nobles and the lower type to those who were buried in sea sands and were of the common people. This indicated that the change in type of the skull was not one of race but of cultural condition. A French craniologist found in studying the skulls of the gentlemen and the peasantry of France that the gentlemen had quite different skulls, theirs being somewhat long, while the lower skulls were rounder. The difference was also ascertained by Prof. Ammon in his studies in Baden and other countries in Europe; and he made this interesting observation: The growing cities of Europe—increasing as they are, constantly and enormously in the density of their population—present an area unfavorable to human life; and it has been estimated that unless such a city as Paris were supplied with human life from outside, everybody in it would die out in about four generations. The conditions of city life are unfavorable to human longevity and health; but when we come to examine in a city who they are that will survive the longest and are best able to combat these unfavorable elements and who, therefore, must become the leaders in that city and found the most prominent families and will gain the most control and get up into the highest society by living there long and getting as much as they can from their fellow citizens it is discovered that they all have skulls of a somewhat similar type—long-skulled—somewhat below, in that respect, the medium skulls averaging throughout Europe. A man must, in other words, have a long head to get along in a great city and found a family there and continue it for a number of generations. Our word "long-headed" is, in a certain sense, a prevision of scientific discovery; it is literally and absolutely true to the craniologist.

The prehistoric exhibit from New Mexico in the exhibition at Omaha will include objects found among ancient ruins, together with a most interesting collection of relics of the ancient Aztecs.

Mrs. Gilbert McClurg, chairman of a committee appointed last October by the State Federation of the Colorado Women's Club to investigate the condition of the ruined cliff dwellings in that State and to devise practical ways and means for their preservation, has written something about it in *The Club Woman*.

Mrs. McClurg, who is better known in the east as Virginia Donagh McClurg, poetess and lecturer, went to Colorado years ago and penetrated the fastnesses of the cliff-dwellers, something few women had ever attempted at that time, and is an acknowledged authority on such matters.

"Our task," said she, "was fraught with many difficulties. Whereas important Arizona ruins lie near settled communities, and are, therefore, easily protected by historical societies, some of our Colorado ruins are situated on Indian reservation land and owners in sandy deserts, without water supply, which makes the work of surveillance and redemption much less easy. The mighty throes of war now agitating Washington have made it well-nigh impossible to find hearing or consideration there. It is evident that the lawmakers think that since the time-worn cliff dwellings, which cover an area of some six thousand square miles in modern Colorado, New Mexico, Utah and Arizona, have waited for attention so many centuries, they can well afford to wait a little longer and until Spain's fate is decided.

"There are two important factors which have contributed to the existence of such an extraordinary number of remains and their perfect condition. These are the dryness of the Southwestern plateaus, and the fact that the house-builders were often driven from their homes in haste, secrecy and fear.

"As one wanders about these communal cliff or pueblo homes, built of enduring stone, here and there still visible in the plaster is the print of a little hand which pressed it centuries ago. Here in the adobe niches are the trinkets of shells and turquoise, the jars, dippers and bowls still arranged on the shelf; the bone awl lies by the stone skinning knife; the stone axe and the stone handmill bear testimony to long past industry. In the granaries are heaps of corn, and put away in pottery ollas and covered with stone lids are stores of grain and seeds for the planting which never came. The trodden, embroidered sandal and the broken loom are mute witnesses of the passing of human skill.

"In shallow cave or walled-up room you may find the occupants of these deserted chambers, the farmer or artisan of that long-past day. The dead have small hands and

feet, their knees are drawn up as in repose on the bosom of mother earth, and the long, fine, soft hair of auburn, chestnut or black, no less than the pale skin and cast of feature, differentiates them from their red Indian brother. About them lie the funeral 'cajete' and the jars which held the three days' provisions for the soul on its way to Shipapu.

"It seems incredible that the plateaus of our own Southwest, the only place where the phase of existence which ethnologists define as 'middle barbarism' may to-day be studied, are absolutely without protection from the hand of the vandal. The visitor to Pompeii to-day is unpleasantly cognizant of the jealous guide who dogs his footsteps. Not a fragment of marble or mosaic, not a bit of stone from the lava pavements may be appropriated. At the Musee Bourbonico he will see all the articles, small and great, which the bygone civilization of these cities (Herculaneum and Pompeii), has yielded up to discovery. They are national property.

"There are localities in Europe, rich in buried treasures of the storied past, where ardent archaeologists by the score are rejoiced to dig and to explore with the understanding that all they find is to belong to the government museums of the country—not to the discoverer. The joy of exploring and finding is supposed to be adequate reward. Egypt protects her mummies and the numberless objects which surround them in their rocky tombs. Even the 'unutterable Turk' guards his antiquities. The attitude of Europe upon this point may be over cautious and grasping, but some protection of this kind is an absolute necessity, if we would not permit the flotsam and jetsam of the past to glide forever from the grasp of the twentieth century. America, with magnificent insouciance, has heretofore neglected to cast over her historical treasure-house the aegis of her protection.

"The actual condition of things is appalling, as civilization creeps nearer this territory of ancient interest. The gallant swain takes 'his best girl' on a picnic to the ruins, and prods out a pottery bowl or a stone axe, which are possibly broken in transit, or forgotten, or taken home to the parlor shelf. The cowboys select fine, large jars of prehistoric make, and setting them in a row, beguile their Sunday leisure by peppering them with shot, in lieu of the tin cans which serve as targets on ranches nearer town sites. The relic-hunter digs up curios which he does not catalogue, and which he separates from their environment without record, making them thus valueless to science, and barters them for groceries at the nearest center 'store,' or sells them piecemeal to the infrequent tourist. The honest farmer carts away the walls from a prehistoric pueblo to line his irrigating ditch.

"Worst of all is the fiendish treasure hunter. He it is who fondly imagines that a treasure of gold and silver is hidden under 'Aztec ruins.' The fact that the use of metals was absolutely unknown to the neolithic aborigines of our Southwest until the Spaniards came, deters him not. He it is who undermines watch tower and estufa; whose blasting powder wrecked the two gigantic stone lions of the Portero de los Idolos; and near the Rito de los Frijoles he has blasted into fragments a row, equal in length to a modern block, of tiny, pre-Columbian cliff homes, whose neat stone walls and well preserved mortar and plaster had bid defiance to the centuries.

"Public interest and indignation are at last aroused, and we see the small beginning which we trust will end in the protection and preservation of all that is left of the pre-Columbian antiquities of the Southwest. In California a band of earnest workers under the leadership of Charles F. Lummis are rescuing the ruined Indian mission churches, so long given over to desolation and decay. In Arizona, when some iconoclast attempted to remove the foundations of Montezuma's castle in the Verdi Valley, the sheriff was promptly sent to arrest him on the charge of defacing public buildings."

Under the leadership of Mrs. McClurg the committee of women has considered, beginning with the Mesa Verde, a skeleton of a plateau, honey-combed with canyons, lying about forty miles from Durango, Col., where in the side canyons of the Mancos are to be found from three hundred to four hundred cliff dwellings. Here are the stupendous "Cliff Palace" of three hundred rooms, the "brownstone front"—the finest specimens of finished architecture in the region, and other well known ruins. Mesa Verde is situated upon the Ute Indian reservation. The land is not valuable to miner or farmer. It is the hope of the committee to secure Mesa Verde eventually as a park under State or Federal protection.

In all his excavations at Xoxo, a point about five miles south of Oaxaca, Mexico, Mr. M. H. Saville, of the Museum of Natural History, New York City, found but one solitary little white arrow head, and no animal remains; from which he infers that the Zapotecas who occupied this country were a peaceable nation and that they did not offer up live sacrifices in their funeral rites.

A. F. B

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THE ARCHAEOLOGY OF CUBA.

By Daniel G. Brinton, M. D., Professor of American Archaeology in the University of Pennsylvania.

On page 244 of The Archaeologist for September, the editor very appropriately directs attention to the archaeology of Cuba, and conveys an inquiry as to what already has been accomplished in that line by the educated inhabitants of the island, or travelers.

It is certainly timely to give a brief review of their labors and results, and this I shall attempt, without, however, aiming at completeness.

The earliest special article on the subject with which I am acquainted is that of Senor Andres Poey, of Havana. He was a member of the American Ethnological Society, and in 1855 read before it a paper entitled "Cuban Antiquities; a Brief Description of Some Relics Found in the Island of Cuba."

The article was not printed in English, so far as I know, but a Spanish rendering was published in the *Revista de la Habana*, Tome. IV, 1855. In this paper, Poey remarks on the scarcity of relics in Cuba, and figures four stone images found there, and attributed to the aboriginal inhabitants. All four represent rudely some sort of anthropoid, or man-like animal, and as monkeys were not found in Cuba, Poey concludes that they were brought there from the continent.

In March, 1862, Jesus Q. Garcia agreed to write a communication for the American Ethnological Society on the antiquities of Cuba (*Bulletin of Proceedings*, p. 14); but I find no further account of it in the records of the society. Garcia was the editor of the *Revista de la Habana*, and was interested in archaeology. In one of its numbers he gives an illustration of what is called a *duchi*, which is the common term in Cuba for the figures of stone or clay attributed to the aborigines. This particular *duchi* was a stone ring, with eyes and ears of gold, and was supposed to be the seat or throne of a chief, but probably was a stone collar.

Another writer is Don Francisco Pi y Margall. In his *Historia General de America*, published at Barcelona in 1880, he figures and describes a number of relics from Cuba; but does not add the precise localities where they were found. Several of them are jars of pottery, without handles, finely finished; the others are representations, in stone or pottery, of various objects; a fig (native); a head with large ears and a wide mouth; an arm, and two spheroidal objects which may have been *duchis*.

In 1881, Nicolas Fort y Roldan published his book *Cuba Indigena* (Madrid), in which he has a few pages on the archaeology of the island. Apart from quotations, he mentions only arrow points of stone, perforated stones, and *semi*, or small idols and amulets, preserved in the Archaeological Museum of Madrid and in the University of Havana.

In the same year, 1881, the International Congress of Americanists met at Madrid, and one of the questions proposed by it was: "From the archaeological investigations made in the island of Cuba, and from the types of the idols found there, can it be inferred that they were the work of others than the tribes found there at the Discovery?"

To this question Don Miguel Rodriguez-Ferrer prepared a reply, which, with the discussion upon it, occupies forty-five pages of the *Compte Rendu* of the Congress. His conclusions were partly based on a cranium and skull found in a cavern, which he figures, and claims to belong to a race different from the known natives; and further on two interesting idols in partly human form, of which also illustrations are given. He believes they must be attributed to some source not Antillean.

So far as the bones were concerned, their value was disputed, and I think successfully, by M. Henri de Saussure; and I may add that a comparison of early sources, such as Oviedo, etc., leaves no reasonable doubt that the *duchi* were made and used by the natives met by Columbus.

This same writer, Rodriguez-Ferrer, is the author of a book entitled "*Naturaliza y Civilizacion de Cuba*," in which he has a chapter with the title, "Archaeological Studies on the Island of Cuba"; but not having seen the volume I do not know its scope.

It should also be noted that in 1885 there was established in Havana an Anthropological Society, which published some numbers of reports; but as I have not met with all of them, I am uncertain whether they contain archaeological material.

When U. S. Commissioner to the Columbian Exposition at Madrid in 1892 I was disappointed to find that in the exhibit from Cuba there were no archaeological specimens whatever, and I noted this unfortunate omission in my official report (p. 43, Washington, 1895). Nor do I remember that any were displayed by the Archaeological Museum at Madrid, although some specimens could surely be discovered in its roomy installation.

It is unfortunate that the precise provenance of the specimens which have been described is so indefinite. Those reported upon by Garcia appear to have been obtained near Bayamo in the province of Santiago; and it is noteworthy that it was on the north shore of this province, near Manicaras, that the first explorers, in 1492, said that they found figures of animals, carved from a single piece of stone, in a sitting position, with arms, short legs, and a tail, the eyes and ears of gold (Fort y Roldan, p. 82).

Another interesting locality, mentioned by Ferrer, is along the river Cuyaguatega, which is in the province of Pinar del Rio, and on the south of the island. This stream flows between lofty and broken banks in which are caves, where the aborigines interred their dead. The full examination of these would be doubtless of importance. Similar sepulchral grottoes have been found along the river Maya, about twenty miles from Baracoa. Some of the human remains and relics from these sites have been figured and described by Sr. Felipe Poey in his work entitled, *Repertorio fisico-natural de la Isla de Cuba*, published about 1870.

One of the objects found by Ferrer and presented by him to the Museum of the University of Havana (where it yet should be) was a statue three feet high, of black marble, representing the upper portion of a human figure, the face bearing a mild expression. This also was found among the mountains of the province of Santiago.

As for earthworks, Ferrer refers to two localities, in the eastern part of Santiago province, the one known as "Pueblo Viejo," the other as "La gran tierra de Maya," where there are circles, squares, mounds and enclosures, which, he

says, resemble in general character, those of the Mississippi valley. They are described in his work on Cuba above named (Vol. I, chap. III). (This *Maya* is not a Yucatecan but an Arawack word.)

I have also learned of a locality, which I will not now further specify, in central Cuba, a river valley, along which, from time to time, one meets grim faces, carved from the natural rock, and sometimes monolithic statues, the work of the aborigines and believed to represent the guardian spirits of the river. This locality I hope to have visited by a competent person this winter.

Ferrer further mentions some ossuaries or interments near the Bay of Santa Maria Casimba, on the southern coast of the province of Puerto Principe, at a place called Los Caneyes. These were noted as early as 1843, and some unsatisfactory reports made about them; but Ferrer himself seems unable to have reached the locality.

The local archaeologist who has been the most active of recent years is Dr. Montane, whose residence is in Havana. Five years ago he had investigated the contents of 150 caverns, mostly in the province of Santiago, and had a list of 250 more for further examination! He is a graduate of the Paris School of Anthropology, and announced in 1893 the publication of a full description of his archaeological work, with maps and illustrations. I have not learned that he carried out this laudable intention.

One of his finds in the caves was a nephrite axe, or rather celt, seven and a half inches long, symmetrical and beautifully finished. It was shown to the Berlin Anthropological Society, and was acknowledged to be the finest object of the kind from America the members had seen (see the *Verhandlungen* of the Society for October 28, 1893). This was exhumed in the extreme east of the island, where there are many caves near the shore and looking seaward. These are particularly rich in pottery, bones and stone implements.

More successful attention has been paid by Cuban writers to preserving the linguistic than the archaeological remains of the native inhabitants. The standard work on this branch is that of Esteban Pichardo, entitled *Diccionario Provincial de voces Cubanas*. It has passed through several editions, my copy being of the third (Havana, 1862). The author diligently collected all the peculiar and local terms, embracing very many which had been derived from the natives before their extinction. Another list is contained in the work of Fort y Roldan, above quoted.

These sources, together with the words and terms preserved by the first explorers, enable us to ascertain beyond doubt the linguistic affinities of the native inhabitants at the time of the conquest. There is no question but that the whole island was occupied by one stock, and this a branch of the great Arawack family of South America. This family can be traced in an uninterrupted series of related dialects from the banks of the river Paraguay to the Bahama islands. There were no Caribs in Cuba and none of the Maya stock, though both these stems were known to the Cubans through expeditions of war or commerce.

No trace of the Arawack linguistic stock has been discovered in North America, and the "Antillean art" discerned in the Gulf States by Professor W. H. Holmes, as well as the traces of Southern affiliation in the art of the Floridian "Key-dwellers," exhibited by Mr. F. H. Cushing, are recent introductions and not more than could have been conveyed by the slight trade connections which we know existed between the Cubans and the Chahta-Muskokis of the Floridian peninsula, at and for generations after the voyage of Columbus.

The identity of the primitive language of Cuba with the Arawack was first shown, I think, by myself, in an article in the *Transactions of the American*

Philosophical Society for 1871, in which a considerable number of Cuban words are identified as of that stock.

This was, at that time, a needed demonstration, as the opinions were currently entertained that the natives spoke some dialect of the Tupi stock (of Brazil), of the Maya, or of the tongue of the Canary islands. These notions were set forth in a work by Antonio Bachiller y Morales, entitled *Cuba Primitiva*. The announcement of it, which is before me, dated "Havana, 1881," states that it will discuss the antiquities of the island, and the traditions and languages of its early inhabitants. Whether it was published or not, I have not learned. The same author had published a volume as far back as 1845, entitled *Antigüedades Americanas*, but from the notices I have seen of it, I doubt if it is occupied with the archaeology of Cuba.

The ancient craniology of Cuba has been the subject of active debate. A number of skulls from the caves show artificial deformity. In the *Thesaurus Craniorum* of J. Barnard Davis will be found the description of six such, exhumed in a grotto near Puerto Plata by Colonel J. L. Heneken. Others were obtained by M. Ferrer in 1847, and sent to the University of Havana. The discussion as to whether they were the crania of Caribs or of the native islanders is briefly, but sufficiently, summed up in Professor Virchow's *Crania Americana*, pp. 18, 19. He reaches the unquestionably correct opinion that there is ample evidence to show the custom of artificially modeling the head prevailed widely through the island. Dr. Montane, however, asserts that there are yet living near Baracoa a few families descended from the native inhabitants who still have the same peculiar form of skull as shown by the skeletons in the caves. His note is in the *Verhandlungen* of the Berlin Anthropological Society, June 16, 1894.

A few words about the natives: The island was well populated, and divided into a number of tribal areas, the names and locations of which have been preserved. Their villages consisted of ten or a dozen communal houses, built of perishable material. Stone structures are not mentioned. The natives were of medium stature, with narrow noses and large eyes. Artificial deformation of the cranium is distinctly mentioned.

They were skillful boatmen, and there is ample evidence that their trading voyages extended to Yucatan, whence they brought wax and woven goods; to the Bahamas, and to Florida, whence it is likely they obtained the gold which they had in small quantities.

The Conquest of Cuba occurred in 1514. In 1532 the first official census of the Indians took place. They then numbered only 4,500. Their destruction had been rapid, and they often killed themselves in groups of twenty or thirty at a time to escape capture and slavery. A few of their descendants, of mixed blood, are said to have survived until this century.

These hints about the archaeology of Cuba could be extended. I have seen references to articles upon various ancient remains in the *Memorias de la Sociedad Economica de la Habana*, and by an energetic collector, Sr. Francisco Jimeno, in the *Revista de Cuba*. But these publications are not within my reach.

What I have said will be sufficient to show that the subject has not been wholly neglected by intelligent Cubans, although it is true that there has been little serious investigation of the remains. The most promising localities for research would seem to be the extreme eastern and western provinces, Santiago and Pinar del Rio. In the caves of the latter we should, if anywhere, find traces of the Mayan culture, as it was from natives of that district that the Spaniards first heard vague rumors of the grandeurs of Mayan and Aztec civilization.

Media, Pa.

PREHISTORIC REMAINS OF THE TUNXIS VALLEY. (Second Part)

BY FREDERICK H. WILLIAMS, M. D.

TOTEMS.

Among all peoples we find individuals or families with animal names, and among some remain beliefs or traditions which associate these people with animal ancestors. The ancient Jews possessed the Totemic animal names,* which was one among the many singular resemblances of rites and customs



FIG. 50 IS PROBABLY A FLAKE. FIGS. 51 ARCHAIC FORMS OF ARROWS.

that led many theoretical writers to consider the Indians as the veritable lost ten tribes of Israel.† We now recognize that such resemblances do not indicate any necessary blood relationship or previous intercommunication, but that similar mental states when meeting similar environmental conditions develop similar expedients. It is hardly probable that the Indian actually believed himself to have descended from any brute such as he saw about him, but rather from some transcendent and spiritual animal, which possibly he may have considered as a common ancestor of both himself and his animal namesake.



ARROW POINTS.

Among some tribes a belief was said to have prevailed that at death they would return into their totemic animal, and probably some animals were held as sacred from this cause. It seems probable that all animal worship may

* "Israelite and Indian," by Garrick Mallory, *Pop. Science Mon.*, 1889—Nov. and Dec.

† See "Peruvian Antiquities." Von Tschudi, pp. 8 to 12. New York, 1855.

have grown out of this idea of metempsychosis allied with the veneration of ancestors. When an Indian found a natural object which he believed to resemble his supposed totemic ancestor he was led to venerate it, either as a reminder of his ancestral form, or perhaps as the veritable abode of the ancestral spirit, for the Indian in his ignorance of nature's laws was not troubled to explain the manner of things. The local Manitos we read about were often doubtless these totems, while others represented the mysterious forces of nature, as the noises at Moodus. We are able to present a fine totemic image of a duck which was found on the Indian trail that ran from Bristol to Burlington. It is now in the cabinet of W. C. Richards, at Bristol, a venerable and respected relic.

TOBACCO AND PIPES.

To elaborate the use of tobacco alone would be more than sufficient to occupy all our allotted space. A great deal has been written upon it since the time when the earlier visitors from Europe were amazed upon seeing smoke pouring out from the nostrils of the naked Indians. Amid much that has been fancifully written about tobacco we may safely reach a few conclusions. The Indian believed the smoke to be agreeable to his invisible gods, and wafted it to them as an incense. He seems nearly everywhere to have connected the cardinal points with his creating spirits and to have wafted smoke to the four quarters of the horizon as well as to the east at sunrise. In the more agricultural sections where a sedentary population had bred up more elaborate ceremonies the pollen of maize was used as a holy sprinkling, or emblem of fructification. Large pipes with long stems gaily painted and elaborately adorned with the heads, and more especially the wings of birds, were used by heralds and other travelers as passports or safe permits when approaching strange tribes. Treaties of peace or alliance and all social compact seem to have been ratified and sealed, so to speak, by the general successive smoking among the contracting parties of one of these pipes. War is also said to have been proclaimed by sending a red pipe adorned with red feathers. Says the Jesuit Charlevoix:* "The custom is to smoke the calumet when you accept it, and perhaps there is no instance where the agreement has been violated which was made by this acceptance. To smoke in the same pipe, therefore, in token of alliance, is the same thing as to drink in the same cup, as has been practiced at all times by many nations." We have no calumet pipes from this section, but illustrate a noble specimen from Nagooche, Ga., fig. 45. What would we not give could it only tell us the story of all the lips that have pressed it? Among all peoples where the social compact has not yet acquired the force of definite and general laws and an efficient police, we find these singular substitutes, which stand to our laws as do hieroglyphics to our modern alphabets. The cities of refuge among the Semitic nations, the eating of salt among the Bedouin, blood brotherhood among the African, taboos in Australasia, and church sanctuary in mediaeval Europe, seem various ways of attaining a common idea. Yet it remains probable that the Indian ordinarily had nothing more than a sensual love for its narcotic qualities in using tobacco. It gave him dreams, and dreams are ever the cherished mentor of the savage, and assisted him in acquiring the frenzy necessary to incantation and prophecy. The pipes which have been found in this section all differ one from another, so that we cannot assign to any the honor of being a local form. In the American Museum of New York is a magnificent greenstone calumet pipe from near Middle-

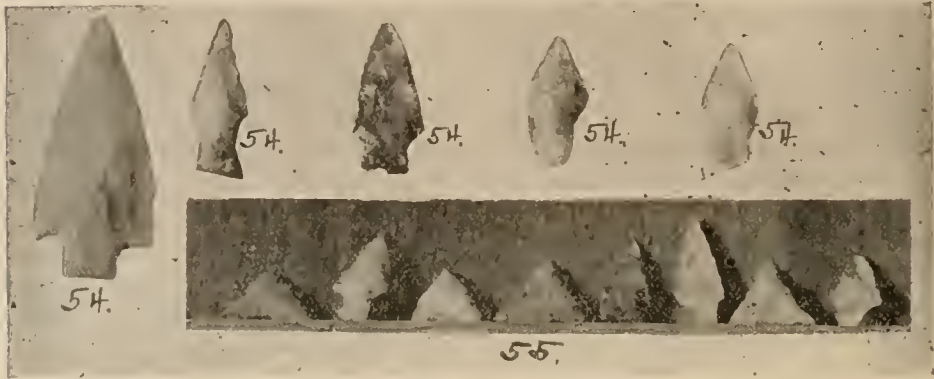
* "Voyage to America," Vol. I, page 180. Dublin, 1766.

town, Conn., of the platform type, which has been called the moundbuilder's pipe. Fig. 46 shows a pipe of statite with a long stem, resembling a modern briar pipe. At the union of bowl with stem is a hole which has been luted with cement, a common Indian expedient rendering it easy to clean. Found in Plainville it represents a type thought by some to be common to the dreaded Mohawks. Fig. 47 *m* shows a very peculiar and elaborately carved pipe of black slate found on the west mountain of Southington. It has a hole in the rim of the bowl for suspension. It resembles a raven. In the Algonkin myth of the deluge the raven took the place of the Jewish dove. This pipe also reminds one of the thunder bird of the Vancouver Indians. In Fig. 48 we present a pipe made of red sandstone, the mate of which we have never seen. The superb collection of Commodore Douglass in New York contains nothing like it. It is certainly genuine, and was dug up in Bristol about ten years ago. Fig. 49 shows a small steatite pipe also found near Bristol. A pottery pipe was shown in the April paper. Several other pipes have been found in this valley. Such as the writer has seen are manifestly intrusive, and not prehistoric. Among them is one genuine Haidah black pipe and several green slate pipes from the Cherokee artisans.

We now turn to the red man's art as we find it embalmed in his offensive and defensive weapons. We believe the primitive man was choice an eater of meat, although made by his oft necessities, omnivorous. We are led more closely to this opinion from the belief which grows upon us that all our edible grains and fruits have been modified toward perfection by man, even by this naked savage man, from primitive forms not capable of sustaining human life. As they journeyed and jostled together along the slow and rugged course of evolution, man gave such plants as were useful to him his protection, and they returned his care with an ever increasing harvest. It was also the spirit of primitive man to be cruel, for was not all nature cruel and pitiless unto him? He recognized nothing of that pity of our modern conceptions of the brotherhood of life, and having the universal instinct of savageism which considers all mankind without the pale of its own clan as an enemy, war was, if not his pastime, at least his frequent necessity. Hence we find the highest development of his skill in those weapons devoted to the destruction of life, and in the manufacture and adornment of those ceremonial objects whose functions were closely interwoven with the pomp and panoply of war. It is our privilege to-day, as at no other known epoch of the world's history, to attempt a review of a people in their entirety. To seek man out ere he was able to record his achievements and to follow him where his deeds were no longer worth recording. The Indian lived in the present, forgetful of his true past, and knowing nothing of his future beyond those unanswering fears and fancies which attend both the weakness of infancy and the decrepitude of age. But, we may view him from the swaddling clothes of the primitive troglodyte, through the robust adolescence of invention, to the miserable senility that closed his epoch. It is this priceless privilege of forcing from the past a mental biography of the progress of mankind and his inventions which contributes the truest zest in our study of man.

The bow and arrow of the Indian furnished his most effectual weapon, both in war and chase, to which he added for closer thrusting the spear or lance and the knife or dagger. These arrows and spears, while sometimes

headed with bone or wood and canes tempered hard by heating in a fire, were mostly tipped with points of chipped stone.¹ Hence it is that we find the art of stone chipping, which we have classed as the eldest of his inventions, ultimately carried by the Indian to the highest point of perfection. The bows



FIGS. 54, ROCK CRYSTAL POINTS. FIGS. 55, MINUTE POINTS.

themselves that gave the Tunxan arrows force have turned to dust along with the arms that drew them; the shafts of the spear and arrow have melted in the pitiless crucible of nature. But the stones that gave them their cruel effectiveness remain, eloquent witnesses of their fabricator's skill. When we handle these beautiful objects of inanimate stone, we feel speaking from them



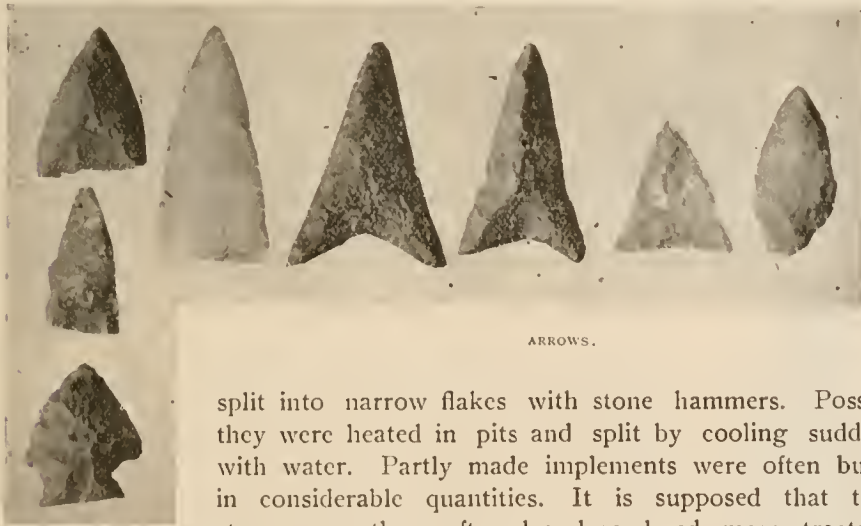
ARROWS.

an epitome of the Indian's civilization. When we compare the rude and almost formless figurines taken from the early tombs of Asia Minor with the

¹ In the "Story of the Pilgrim Fathers," by Arber, 1897, page 432, we find the following in "Governor Bradford's Relations," which was printed in 1622, referring to the first conflict with the Indians: "We took up 18 of their arrows, which we sent to England by Master Jones (of the Mayflower): some whereof were headed with brass, others with hart's horns and others with eagle's claws." Not a word spoken of stone heads. Some modern archaeologists are beginning to believe that our historic Indians made none of such weapons as we now find. In the first interview with Samoset, we read, "He had a bow with three arrows, one headed and two unheaded." I find no mention of stone arrow-points in use, in the Relations of Governor Bradford.

finished works of a Phidias we may compass the evolution of Grecian art.* So here we find entombed the fruits of the entire evolution of the red man's art in chipping in stone. From the timid and uncertain blows of the paleolithic savage, step by step the acquired skill of assured art was imperceptibly welded with the conscious hand, until we behold here such results as the white man with all his tools has nowhere been able to imitate. Stone chipping is now believed to be a lost art. The ethnologists of the Smithsonian Institute have never found an artisan who, even when supplied with all the tools of modern art, was able to imitate some of the leaf-shaped implements of prehistoric man. And the most skillful of the flint knappers of Brandon, England, men whose occupation is making gun flints also failed after months of effort to produce the forms made by a savage whose only tools were stones and bones.

It is not certainly known how the Indian made these arrow points, working such a brittle material as white quartz into the exquisite forms here portrayed. It is the general belief that chert, jasper, slate and quartz cobbles were first



ARROWS.

split into narrow flakes with stone hammers. Possibly they were heated in pits and split by cooling suddenly with water. Partly made implements were often buried in considerable quantities. It is supposed that these stones were thus softened and rendered more tractable.

Such a cache was found some years ago near Hadley, Mass., containing sixty arrow and spear blocks. These blocks are so old that they were turned to an ashy white; they resemble the St. Acheuil blocks in shape and coarse chipping. The flakes were gradually chipped down into shape with the little knockers. When the stone had thus been partly outlined, it was finished by another process. Either some hard object as stone, bone or horn was used as a chisel driven by a hammer to force off little flakes from either side alternately, or the so-called flakers† were used to push suddenly against the arrow, being worked from alternate sides, each impulsion of the tool taking off a little splinter opposite the point of impact. Various arrow flakers have been found among surviving savages. The only tool resembling these from this section that we have seen is shown in fig. 50, which resembles the alleged bone flakers from the prehistoric cemetery of Madisonville, Ohio. We are able to conceive no other use for the above implement. Skillful men in all tribes where suitable materials

* Vide De Cesnola Collection of Central Park, New York.

† See figs. 15 and 16 April number of Quarterly.

were obtainable seem to have made a business of arrow chipping, and it is known that points were sent in barter to great distances from the places where they were fabricated. Some twenty-five years ago a cache of perfect jasper arrow points was found near Compounce containing seventy-eight fine specimens.

These chipped implements divide naturally into two orders, those notched or tanged for attachment to a shaft, and those with no perceptible arrangement for halting. By general consent archaeologists separate them into three divisions—arrow points, usually under two inches in length; spear points, two inches and upward, and knives. The arrow point differentiates into the drill, the bunter, and the tanged knife or scraper, as shown in our first articles. We shall here consider only those forms used in war and chase. Space forbids a consideration of the many curious forms, and speculations upon the manner of their development from some presumably primitive ideal. The inquiring reader will find the general type forms carefully worked out in a recent monograph by Mr. Gerard Fowkes.* A glance at the forms here illustrated will readily convince the student that no one people had a monopoly of arrow forms, as we can show here every type of Mr. Fowkes except the long lozenged shape tang which we find from Arkansas and Mississippi. Anyone familiar with large collections of arrow points learns to distinguish certain peculiarities of finish and material by which the probable source of any individual point may be guessed. There is a distinct individuality which distinguishes the fossil chert points of Florida from the same colored type of Wisconsin. The white quartz of Connecticut are easily separable from those of Virginia or Carolina. Yet this shows more in the material and the way it takes a finish than in the



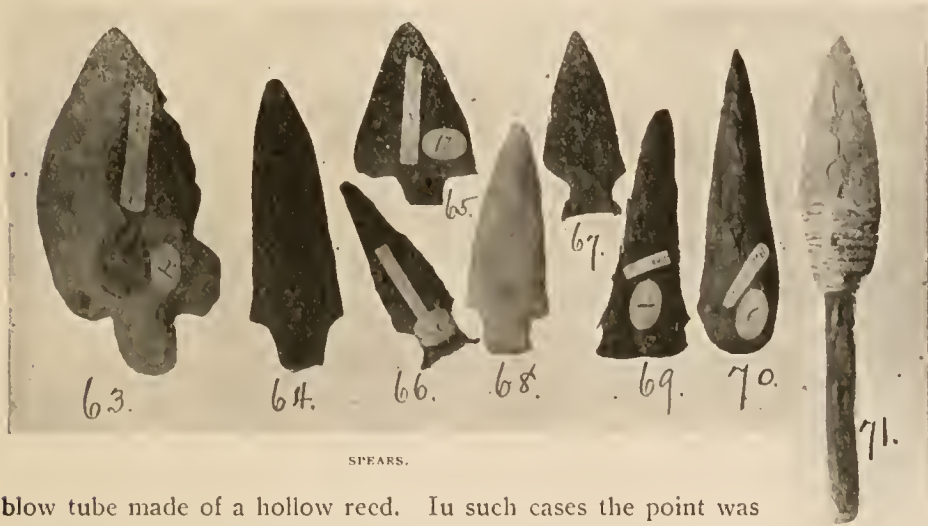
FIG. 62.

skill of the artisan. If there is any form more common than others in this region, we think it is the small points of white quartz. Upon some workshops, notably at Compounce, nearly all are found of this substance, and upon the near mountain may be seen the veins and pits from which the Indian has pounded out his material. Also red sandstone and shale seem to have been largely used, as they are the most abundant of our workable stones; very many decayed fragments are found in every considerable workshop. If the writer were to express an opinion as to the more ancient forms in this valley, it would be for the type here illustrated, fig. 51, of which many are found so very old that all trace of the chipping has been eroded, and they look as though they had been rubbed into shape. Most of the forms occur universally, but occasionally local workshops are found with nearly all the points of one type, notably in Granby, where all the specimens are triangular; figs. 52. In one place in Farmington were found a number of very rude arrows of an intractable metal which may be very old; we have seen nothing like them elsewhere, either in shape or material; figs. 53. Basanite and red and yellow jasper pebbles were found in the bed of the Farmington and made into beautiful forms. Argillite occurs in older types. Also some exceedingly beautiful points

* Thirteenth Annual Report, Bureau of Ethnology.

are found of the clearest rock crystal, equal to anything from North Carolina, fig. 54. Many arrows occur in materials of whose source we know nothing.

Arrows have been divided into war points and hunting points, the former inserted into the shaft so loosely that when the shaft was pulled out the head would remain in the wound; such a wound would be very serious in Indian surgery. While those styled hunting arrows are notched or tanged so as to secure firm attachment to the shaft and be easily recovered by cutting the dead animal. It is impossible that some of the smallest points were used in a



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blow tube made of a hollow reed. In such cases the point was probably poisoned. Venomous serpents were made to bite raw flesh, and when this had become partly putrescent the arrows were thrust into it and made highly poisonous. Fig. 55 shows these minute points from this valley. Fig. 56 shows eight war points of various shapes. Fig. 57 is a very curiously shaped tanged point. Fig. 58 is a beautiful object of smoky quartz. Fig. 59 is of smoky quartz, and may have been a knife; it has sharp edges. Fig. 60 has serrated points with long barbs and a deeply notched tang, a rare and beautiful object in greenish stone. Fig. 61 is beveled off on opposite sides like a reamer.

Many other forms are illustrated, which our space forbids us to classify.

NOTES ON DELAWARE INDIAN SITES, WEST SIDE OF BRANDY-WINE.

Up to the middle of the present century, there was no one in this section of Pennsylvania engaged in the systematic collection of antiquities or implements relating to primitive man. A few objects that excited the curiosity of the farmer while plowing his fields, were picked up, shown to his family and neighbors and then cast aside, or worse, were broken to see what material they were composed of. In my early years while on a collecting trip, I called at the house of a farmer who resided on an Indian village site. On asking him whether he cared for the Indian relics, arrows, spear-points, etc., strewn over the ground near his house, he merely replied: "What are they good for?" Stunned by this unexpected answer, I turned away, and picked up several fine axes, celts and arrows. I again walked up to him and showing the specimens, asked him whether he would allow me to retain them. He told me that "I might have all I cared for, as he was not yet foolish enough to go about the country picking up stones like little children." Although many of the rare relics in my possession were in my younger days obtained under such conditions, the case is entirely different now in this thickly settled section of country. Permission to collect relics is now reluctantly accorded on cultivated grounds; hence we are often compelled to be satisfied with the privilege of making a hasty survey of the premises, picking up only such casual objects accidentally coming in our way, and hieing ourselves to the wooded hills and new grounds, which are being prepared for cultivation.

Through the carelessness of former generations many interesting and instructive relics, relating to primitive man have been lost. But by reason of a strong sentiment among the people at large to evoke and foster an interest in this line of research, I find that of late the people make it a point to collect material for the student of prehistoric history, and as a rule allow him to examine their collections and furnish all possible aid in determining the conditions under which they have been discovered. Instead of discouraging this, I have favored the formation of private collections. Experience has shown that this is the proper way to save from destruction many objects which otherwise will be lost, the private collections sooner or later finding a home in some institution where they will be cared for.

In the classification of objects in these private collections, one should insist on a rigorous and systematic method to distinguish the geological conditions and horizon where they have been discovered, so as to show clearly the progress of primitive man from one primitive station to a more advanced one.

Turning attention to the western banks of the Brandywine, about five hundred yards north of the confluence of this stream with Durham creek I discovered in 1877 a cache of so-called net sinkers carefully piled against a shelving limestone ledge. The supervisor had been widening the public road and in cutting away the bank along its side exposed the limestone ledge. Passing the place next day I noticed a few net sinkers lying in the road, and at once commenced a careful investigation of the surroundings. I was finally rewarded by seeing several lying close to the ledge of rock. Scraping the gravel carefully from the side of the rock and near its base where it rested on another limestone ledge, I found enough of these interesting objects to fill a peck measure. The place where they had been concealed was covered by glacial gravel to a depth of eight feet. Some of the net sinkers were grooved all around, others were pecked on one or both sides, and were manufactured from the adjacent glacial boulders. Two hundred yards north of this cache, where a small stream mingles its waters with the Brandywine, were found several playing balls, ice picks, steatite beads, celts,

stone mortar, banner stones, teshoas, ripping knives,¹ etc., with green and pink feldspar, the latter having been carried hither by primitive man either from curiosity or probably for manufacturing paint, as several small mortars and pestles were found close by. Some distance west by northwest was located along this stream an Indian lodge in which resided a Delaware Indian warrior and his squaw as late as 1780. Half a mile south of this lodge was an Indian camp or picket station which also claims attention. Although this valley along with the Durham creek valley was occupied by the whites early in the eighteenth century, 1705, a large iron industry being carried on here, yet it appears that after the Shawnees had been vanquished by the Delawares and fully quit the community about 1730-32, several Delaware picket camps continued to be occupied by the Indians as late as 1780. This campsite was located and investigated by the writer when a mere boy, his attention having been drawn to it by a hired man who was employed near the campsite quarrying limestones about the year 1854. One day he told the writer what his employer told him about the Indians that formerly occupied the locality where they now were quarrying limestone, and how the Indians used to frolic and hold their feasts around the small lake² near by. The story goes as follows: "The Indians during the summer when not hunting or fishing along the creek or at the Delaware river, were lounging about the lakelet. The squaws packed up their papooses in the morning and traveled across the Durham creek over Rattlesnake Hill, where they occupied their time in tilling corn in an old Indian cornfield until evening, when the bucks would come in the cool of the evening to bring them back to the lodges. In the fall during Indian summer, about full moon when the corn was ripe, all the Indians male and female, at eventide wended their way over the hill to the cornfield, where they held a grand carnival with festive dances and hideous noises. Near this cornfield were a number of small circular mounds, and numerous stone cists, where the Indians performed their mortuary ceremonies with hideous yells, keeping fires burning all night. These festivals and carnivals were continued until nearly all the Indians at this place had passed to the happy hunting grounds, some time during the decade between 1770 and 1780.

It is said that during the Revolutionary war the small remnant of Indians left the section never to return.

Riegelsville, Pa.

CHARLES LAUBACH.

¹Composed of an elongated rounded module of jasper, with a short, pointed knife-like curved hook, the whole implement having been carefully chipped throughout. The blade, including the hook or half moon curve, was about an inch in length and very sharp and pointed. The handle, which was about one and a half inches in thickness and four in length, showed very little tapering towards the pointed end. Only two of this class of knives, manufactured of jasper, have been discovered by the writer and these were afterwards feebly broken by a set of roguish boys who had called at my office and in sportive Indian fashion tried to scalp each other.

²This lake is now generally dry during the summer, and as the slides or banks thereof have been plowed continuously in the hopes of filling it and levelling it with the contour of the remainder of the large fields, very few relics are now exposed, although they were quite numerous a few years ago. A curious feature in regard to this lakelet is that at the southern extremity, at a distance of fifty feet, was a walled well, six feet in diameter and four in depth, probably utilized by the Indian watchers to warm their feet while on picket duty or to hide from danger from hostile tribes going and coming to attend treaty meetings in the Durham meadows close by. Nearly one hundred yards northwest of the lake is located a huge anvil rock, about four feet in height and the same in diameter, pyramidal in form, tapering to eighteen inches by four feet. It shows considerable abrasion and was probably used to pound acorns, walnuts, etc.; or it may have served the purpose of an anvil for cracking bones, to facilitate the extraction of the marrow contained in them. It is a solitary granitic rock setting in the same enclosure as the lake, and could it speak it might help us to know more about the Antiochous races inhabiting this section, who from time to time inscribed their annals on stone which to a great extent are yet inscrutable and involved in symbol and metaphor.

THE REMAINS OF A PREHISTORIC CITY FOUND IN MEXICO.

At the Boston meeting of the American Association, August 22-27, Mr. Marshall H. Saville, of the American Museum of Natural History, read a paper relating to the remarkable results of his recent explorations among the ancient cities of Mexico. Not only are they likely to revolutionize some of the pet theories of archaeologists and anthropologists, but they are of great interest for the light that they throw on the question of the origin of the most ancient inhabitants of the western continent.

The scene of these remarkable discoveries is Xoxo, about five miles south of the district of Oaxaca. The most important part of the work was accomplished during six weeks of the half year over which Mr. Saville's recent trip extended. Half by accident, Mr. Saville stumbled upon the ruins of a great prehistoric metropolis, the ancient capital of the Zepotecas, by all odds the most enlightened nation that ever inhabited the new world prior to the advent of European civilization. He not only found this ancient city, but unearthed hieroglyphics of a character far surpassing anything hitherto supposed to exist in the western hemisphere, besides other proofs of a high culture and an advanced civilization. The explorer is convinced after careful scientific analysis that these revelations place the prehistoric Zepotecan nation on a par with the ancient races of India, Chaldea and Egypt, and that they possibly prove the first settlers of this continent to have been related to the first named of these peoples.

Mr. Saville is the head of the Department of Archaeology in the American Museum, and has spent many years in studying the traces of the prehistoric peoples of America. Since 1889 he has been constantly making researches in Mexico. Mr. Saville left on his latest and most successful trip in October last. It was his purpose to decipher certain picture writings which cover the temple of Montezuma's far-famed sun-god, then considered the most important ancient American structure. Quetzalcoatl, the sun god, was the principal deity of the Aztecs, and by some lucky chance his temple escaped the destructive hands of Cortez and the other Spanish invaders.

Mr. Saville's work was prosecuted under the auspices of the Mexican government, and he was accompanied by Mr. Humphreys, a surveyor, who acted as an official Mexican representative. While on the way to his intended field of labor, Mr. Saville found traces of a great group of pyramids near Xoxo. This region has long been recognized as a fruitful field for the discovery of Zepotecan relics. Thinking that a little exploration might uncover something of value, Mr. Saville set his native laborers at work, and in a short time had unearthed a number of pyramids and smaller mounds. The largest twelve of these pyramids are of the sort called *teocalli*, an Aztec word meaning divine tombs. The ground throughout this region was thickly overgrown with guamuchi and mesquite. The roots from these trees penetrated to a great depth, and in several instances they had broken through the stone floors of the mounds. Specimens of ancient pottery and other relics were found which had been broken up by the same resistless forces.

One day, while Mr. Saville was reconnoitering some distance to the north of the big group of pyramids, he came to a rise of ground forming a sort of low plateau some distance above the rest of the plain and covered with the usual heavy vegetation and undergrowth. Separating the vines and brambles as well as he could for a short distance from the outer edge of the growth, and peering underneath, the explorer noticed peculiar bits of pottery and traces of ashes. On examining the pieces of broken pottery he knew at once from their peculiar formation that they had lain there undisturbed for centuries, sheltered from wind and

storm by the impenetrable thicket, through which not even the heavy tropical rains could force their way. The explorer applied himself to pick and spade, and with great difficulty dug two or three feet into the earth, where he came to a hard, flat surface. He called his laborers, who quickly cleared away the brush and dirt. The surface was found to be a cement floor, or, perhaps it would be more accurate to say a cement roof. Cutting through it, the workers came to the face of a stone wall. Sealed to this wall by their rims were cazuelas (earthenware bowls). Under each bowl was a bright red funeral idol, which had been so thoroughly preserved by the perfectly dry air that it looked as though it had been newly painted.

What had at first appeared to be a stone wall was now seen to be a long slab, forming a lintel over the top of a door. After further digging, the doorway was uncovered and was found to be blocked by a huge metate (native millstone). Its corners had been filled in with smaller stones and the whole was cemented over, so that the tomb was hermetically sealed against dampness and other corrosive agents. The lintel of this doorway was a huge stone block of volcanic origin, about 6 feet long and 18 inches wide. Carved across its entire surface were inscriptions in the hieroglyphics of a civilized race! No writing of such an advanced character as that of these hieroglyphics has ever before been discovered in America. The explorer took casts in plaster and papier mache impressions of this monolith, and finally of the whole doorway. The inscriptions show in excellent relief, and Mr. Saville is now engaged in study of them from the casts. He intends to recast duplicates of the originals and send them to the ablest hieroglyphists and students of ancient records, in order that the utmost knowledge and skill may be brought to bear for their deciphering.

As soon as the doorway was cut through, Mr. Saville and his assistants entered the chamber of the tomb. Mural paintings, representing female figures draped in shrouds and in attitudes of prayer, were on the walls. Three niches in the tomb contained a number of skulls, and other bones, comprising parts of ten skeletons, were scattered about. These were all painted a bright red, the same shade as that which covered the bones found outside the chambers under the cazuelas. Red, Mr. Saville says, was the mourning color of the Aztecs. The fact that all the bones were painted shows that they had been entirely stripped of flesh before being placed in the tomb. During the long generations which had elapsed since the sepulchre had been sealed over an inch of fine dust had sifted down from the decayed rocks which formed the roof and walls.

The most valuable part of the discoveries in this ancient tomb, in the opinion of Mr. Saville, was the inscriptions. Although some of them bear a generic resemblance to the Maya writing which has been found in other parts of Mexico, no written characters of so high an order have ever before been discovered in America. It is Mr. Saville's belief that the writing is at least partly phonetic.

The next step in Mr. Saville's explorations was the great crypt of Xoxo. It was discovered by Dr. Sologuren, the famous Mexican archaeologist and collector of relics, in 1886. Mr. Saville forced his way into it by a small side door which had been previously unknown. To reach the interior four floors, each from two to three inches thick, made of a very hard white cement, were cut through. Peculiar architectural formations of an important ceremonial significance were found in the interior of the crypt. It seems likely, from the religious and ceremonial symbols uncovered here, that the origin of the Zepotecan religion may be found to be identical with that of the most ancient faith of the Eastern world.

The great discovery, and the one which scientific men consider the most important yet made, was hit upon in the course of excavations among the mounds already mentioned. A terra cotta drain pipe was found leading from one of these

mounds into the fields. The joints of the pipe were several feet long, and they were so made as to fit carefully together. The course of the pipe was followed for a considerable distance. Then it broke off, but further along it was found again, and, following it up a steep mountain, the explorer came to a huge temple at the top, surrounded by an imposing peristyle. It had been a work of the greatest difficulty to follow the long course of the buried pipe, but probably by no other means could the ancient city have been discovered, hidden as it was by thick growths on all sides.

The sides of the mountain, on the summit of which stood the city, had been artificially terraced, the top had been razed and fortified on all sides till it was impregnable. The temple itself was a fine piece of architecture. Beyond it on the broad area of the mountain top, were the crumbling ruins of amphitheatres, palaces and other public buildings. Streets and passageways were exactly as they had been during the long centuries since their desertion. Here on this terraced mountain, overlooking a great stretch of country at its foot, was at last found the lost capital of the Zepotecan nation, at one time probably the rulers over most of the other peoples of the continent, certainly their leaders in art, civilization and industry.

The mountain on which the skeleton of this prehistoric metropolis was brought to view is marked on the Mexican government maps as Monte Alban. Its crowning wall is completely hidden by the surrounding growth of lofty trees, and it is so difficult of access that it has never been attacked or even seriously thought of as a field of exploration. That there were ruins upon this summit was known before Mr. Saville's visit, but they were supposed to be only the remains of some rude Indian fortress instead, as has been proved, the wreck of a stately and civilized city.

"Zachila was, in all probability, the ancient name of the city on Monte Alban," says Mr. Saville. "Not very far away there exists a little village which now bears the same name. The spot was strategically an ideal place for a great capital city in the troublous times when it must have existed. Its situation made it an impregnable fortress. The mountain stands at the intersection of the three broad valleys, Caxaca, Etla and Jalplan. Thus it commanded a wide view in all directions, and, being isolated by these valleys from the surrounding mountains and looming high above them all, it kept perpetual guard over all the country round.

"Of course, my work did not extend over a sufficient length of time to determine the exact extent of the culture, wealth and civilization of the people who once inhabited the city, but they must have been far in advance of most of those with whom we have become in a degree acquainted through other mounds and ruins. The city was certainly one of considerable size, extending over several square miles. We came upon stone aqueducts over six feet wide. In the different parts of the plain are big mounds which, on investigation, proved to be crumbling remains of what were once great public buildings. The frequent earthquakes of that region, which probably caused the destruction of the city, have shaken these once important structures into mere heaps of dust and debris.

"In the southern end of the city we found a big mound over a thousand feet long and three hundred feet wide. The slopes of its sides were regular and faced with masonry and there was a stairway leading to its summit. It may have been the site of a vast temple or of a series of public buildings. At the opposite end of the city there was a rectangular basin of about the same size which once formed a great amphitheatre where public gatherings were held and religious ceremonies performed.

"No reliable proofs are left of what a Zepotecan dwelling was like. Excavations of temples, causeways, pillars, arches and other magnificent public structures, and a searching study of the plans and general appearance of the city, have furnished the most convincing data for the scientific meaning with which the explorations have clothed the masses of hitherto meaningless stone and dust. Everywhere there was found proof that the Zepotecs were a peace-loving people who must have been governed by an elaborate code of laws and customs. They had a literature, too, for we found proofs and traces of it, though, of course, there was no time to go extensively into that phase of the explorations. Their religion must have developed to an advanced stage, for we found proof that they did not offer up live sacrifices in their religious fetes. Doubtless further work will bring to light other important and interesting facts about the lives and customs of these people, whom we may justly look upon as our earliest predecessors on this continent. Just how extensive these discoveries may prove to be is impossible to say at the present time.

"Ever since the attention of anthropologists has been called to this hemisphere as a field for archaeological study, the great question has been to settle conjectures as to how the prehistoric tribes and nations sprang up in America. The theory most widely accepted is based on the hypothesis that the vanguard of human migration to this continent was composed of wandering tribes from Asia who crossed by the Behring Straits into Alaska and who, meandering southward to North America, finally settled in Mexico. By this theory South America was populated partly by subsequent migrations from the same source and partly by secondary ones from the Mexican settlers. It is possible that further Zepotecan explorations will settle this question which for 400 years has been a scientific riddle, and that the phonetic writings, burial customs and architectural peculiarities brought to light on and about Monte Alban may disclose the origin and even the progenitors themselves of the first Americans."—N. Y. Sun.

To the Editor:

CORRESPONDENCE.

In the closing sentence of my notice of Mr. H. P. Hamilton's remarks on fraudulent copper relics, published in the August *Archaeologist*, I said: "I do not doubt for a moment Mr. Hamilton's ability to produce satisfactory evidence that the several hundred copper implements in his collection are genuine, yet the fact of such a large number being found in one locality does not furnish absolute confidence in regard to their origin." To my great surprise, this sentence has been construed by some as an insinuation on my part that in so large a collection some of them must necessarily be fraudulent. I certainly disclaim any such idea or thought, or any intention to cast doubt or suspicion on Mr. Hamilton's collection, or on any statement he has made. What I intended to say was that, as a rule, numbers alone could not always be regarded as a safe criterion of genuineness; for the great abundance of any class of relics in any given locality is not always a safeguard against the introduction there of frauds by designing rascals.

I have recently received from Mr. H. P. Hamilton, of Two Rivers, Wisconsin, a number of copper implements from his collection—ten in all—for inspection, and, from many years of experience in this field, I do not hesitate for a moment to pronounce these genuine and very fine; and will add that his collection, judging from these samples, is exceedingly fine both in numbers and quality.

In the manufacture of copper implements and weapons by the savages of America, the native metallic copper was hammered in shape with a stone hammer on a stone anvil; producing peculiar laminations in its structure that can be plainly seen in most of specimens without the aid of a glass. A successful counterfeit can only be produced by the same method and the same tools. This would be too inconvenient, expensive and slow for the counterfeiter, who takes for his purpose the rolled copper of commerce ready to his hand. Consequently, his work can be easily detected by anyone who will give the subject thoughtful investigation. I regard all attempts to imitate or counterfeit prehistoric relics with great abhorrence; hence, if, in my zeal, I have used language that could be construed to the detriment of honorable persons, I hasten to disclaim and recall it.

THOMAS HARPER.

Bellevue, Pa.

Curator of the Historical Society of Western Pennsylvania.



To the Editor:

Enclosed find cut of one of the most valuable discoveries made in Allen county, Indiana. The find was made on the farm of Mr. George Zeimmer, three and one-half miles northeast of Harlan, in the latter part of June, 1898. While he and his men were removing gravel from the pit, they unearthed a large skeleton and broken pottery; also Bird No. 1, of beautiful workmanship; material, banded slate; length of bird, 5 inches; width, 2 inches; rounded on under side, with small perforations at each end; possibly one of the best specimens known.

No. 2 is a copper axe of native copper, well made; the side exposed, you will note, has markings, or date marks, or little dots. Length of axe, 4 inches; width at point, 2 inches; possibly came from copper region of Superior, and was at some time owned by the man of the copper age.

No. 3 is a tube, $4\frac{1}{2}$ inches long, made of grayish material. While I am not authority I believe it is made of a composition of some kind—pottery, I think. It is quite heavy and is badly worn and shows excessive use.

No. 4 is a small arrowpoint of no importance.

No. 5 is of white spar, with groove cut in it lengthways. **LESLIE W. HILLS.**

Fort Wayne, Ind.

Editor of The Archaeologist:

In a recent number of your popular magazine I described an ancient ditch and embankment on Lopez island, off the northwestern corner of the State of Washington, that had all the appearance of having been constructed for a military defensive work. From inquiry I have learned of several other similar ditches and breastworks on other islands of this archipelago; each seemingly intended to isolate some point on the water front as though for protection from an enemy. On the southern end of Lopez island I recently examined another one of these fortified headlands almost the counterpart of the one before mentioned. The northern shore line of McKay's Harbor is a rocky wall almost perpendicular and from fifty to a hundred feet in height. At one point in this vertical escarpment is a narrow cleft, not exceeding thirty feet in width, extending from the pebbly beach, as a steep, narrow defile, to the summit a hundred and fifty feet above, where it terminates, or rather originates, in a fine spring of fresh, clear water. From the margin of this seagirt headland the surface recedes in a rapid decline of level towards the mainland of the island. Not far below the spring and at the base of the declining bluff, a ditch starts at the edge of the precipice, and hugging the bluff closely for the distance of two hundred yards, runs into a large, narrow crevice in the rock that continues down to the water line at low tide. In digging this ditch the excavated dirt was thrown on the outside, as in the first instance. Though a part of the land it traverses has been pasture for horses and cattle for many years, the embankment is still very prominent and the ditch is three or four feet in depth; and in that part of it passing through the timber and protected by it, the ditch is fully six feet deep and fifteen feet in width. Heaps of burnt and decayed shells are scattered over the area enclosed by the line of fortification, testifying to long occupancy of the place; or that it was the camping place of a large number of people who subsisted chiefly on shellfish.

On the shore half a mile east of this point, where fresh water and wood for fuel are abundant, down the shelving beach is an extensive clam bed, from whence, no doubt, the shells forming the heaps on the highland were taken. What motive, then, but the exigencies of war, or dread of enemies, could have impelled these ancient clam-eaters to leave this inviting and convenient camping place and carry their shellfish to the top of the barren bluff up through that narrow, steep gorge?

These ditches and embankments imply the expenditure of an immense amount of labor; especially if constructed by the aborigines with their primitive tools and appliances. It has been suggested by some that the authors of these works may have been Russians who came among these islands from Alaska in search of fur-bearing animals, and fortified their camps to guard against hostilities of the natives. But if this hypothesis is correct, the Indians here would surely have some recollection or tradition of the visits of such strange foreigners. But they have none. I am acquainted with an old Indian here who traces his ancestors back for a hundred and fifty years as residents of this immediate vicinity; but he has not the remotest idea of the builders of these earthworks. I interrogated Mr. Barlow, who, with his Indian wife, has lived for forty-five years just across the end of the harbor in plain sight of this embankment and ditch, concerning their origin, and he said they were as much of a mystery to the oldest natives when he located here as they are today to the whites.

Friday Harbor, Washington.

WM. H. THACKER.

Editor American Archaeologist:

In your friendly criticism of my work, "Introduction to the Study of North American Archaeology," in *The American Archaeologist* for August, 1898, there are some inferences drawn which I do not think are justified by anything found in that work. For instance, the following paragraph:

"While ignoring any discussion of the Indian's origin in North America, the author very pointedly asserts his belief that they reached the valleys of the Churchill and Nelson rivers—that frigid hive from whence they swarmed—from the Northwest; in other words, from northeastern Asia. If this supposition is correct, it is as difficult to understand why the primitive Asiatic immigrants selected such a bleak, inhospitable and barren region for their future home as it is to trace the route by which they reached it. After having crossed Behring Strait, it is hardly probable they would have continued traveling directly eastward, along the frozen and sterile shores of the Arctic ocean; or across the snow-clad mountains of Alaska, to the mouth of the McKenzie river, and then up that stream to its sources."

It is possible that the word "extreme," in the expression "extreme northwest coast," used by me as indicating the probable point of entry of population into North America, was stronger than I intended. The thought in my mind at the time it was written, embraced that portion of the coast from Queen Charlotte's Islands to Behring Strait. I have not referred to Behring Strait as the probable point of entry, nor in fact have I yet settled that in my own mind. I think the region of Queen Charlotte's Islands as likely a landing place as any north of it. I certainly do not entertain the opinion that the immigrants traveled "eastward along the frozen and sterile shores of the Arctic ocean to the mouth of the McKenzie river."

All that I think can be asserted with any degree of confidence is that the inhabitants of the region now occupied by the Athapascans, or Déné, came over the mountains from the west coast. Such appears to have been the opinion of McKenzie, Morice and Pettitot.

Frederick, Md.

CYRUS THOMAS.

Editor American Archaeologist.

I notice in your February number an article by Professor Hill-Tout on "Survivals of the Stone Age" (in British Columbia), in which he says that "the manufacture of stone implements is now entirely unknown to the modern tribes of British Columbia." This may be true regarding the tribes on the coast, but is not entirely correct so far as the tribes of the interior are concerned. Almost all the old men of the Upper Makyapamux, for instance, have seen stone arrow-heads made, or have manufactured them themselves; and many of them can make them today without any difficulty. Some of the stone arrow-heads sent to the American Museum, in New York, were made by an old Indian at Spence's Bridge. I have sat and watched this man make them one after another; so the art of chipping and flaking stones into arrow-heads, etc., is not entirely unknown amongst the Indians here. However, the young generation of Indians know little or nothing of the process, and when the old men are gone the art will be lost so far as the Indians of this part of the country are concerned. Stone scrapers used in tanning skins are also still made and used here; stone spear-heads and tomahawk blades have also been made here by Indians within the last couple of years as specimens; and stone pipes are made almost every day by someone or another throughout the tribe. Some of these are made for sale to the whites; but most of them are made for their own use, as the stone pipe is still the commonest kind in use by this tribe.

Spence's Bridge, British Columbia.

J. A. TEIT.



To the Editor:

Having been a collector of Indian relics in this locality, in a small way, for a number of years, and also a subscriber to *The Archaeologist*, I would like to have an opinion from you as to the name and probable use of the stone, of which I send a drawing, in half its actual size. It was found by a friend of mine as we were looking over an old Indian village site in this vicinity. It has been for some time a custom of mine to occasionally take a friend with me and spend a day's

outing about the old Indian camping grounds hereabouts looking for specimens. Our finds on this day consisted of arrowpoints—particularly one fine perfect one of yellow jasper—and some of dark flint; some turtle-backs of quartz, and of this stone I have figured. It is twice the size of the drawing, plainly streaked lengthways, some of the streaks being brown and some gray, slightly tinged with green. It is very smooth all over; about three-eighths of an inch thick in its thickest part; and looking at its edge it seems slightly curved, or S-shaped. The edge is rather rounded, and under a glass of medium strength the stone shows fine scratches as though it had been rubbed out or down by using a harder rubstone. The work on it is very fine and regular, and it bears the appearance of wear and long use. I would give an outline view of it edge-wise, but a correct sketch of it in that position would be hard to get, as the stone is a little winding. Any information concerning it will be highly appreciated.

There is an old gentleman living near me at a very advanced age, who says he remembers when there were still the remains of a number of Indian wigwams on the hillside near where we found this stone. At the foot of the hill is a fine spring still flowing, and below the foothills the old village site extended, where we have found many stone implements, of flint and quartz, made by the race now vanished.

Amityville, N. Y.

S. R. AUSTIN.

[The stone, of which the above described implement has been fashioned, is banded, or striated, slate; a material very extensively employed by the aborigines of New York, and portions of Ohio, for the manufacture of charms and ornaments particularly. The implement in question is known as a squaw knife, or woman's knife. It was made by a squaw, and used by her for a variety of purposes, chiefly for trimming and smoothing lodge poles, spear and arrow shafts, etc. Knives of this form, mostly of iron, but a few of jadeite, are still in use by the female Eskimos, and some of the Déné Indians, of the far North.—Editor.]

Editor *American Archaeologist*:

I was thinking of sending in a warning about William Cudney, of Galt, Ontario, Canada, when his exposure appeared in the August *Archaeologist*. He sent me several specimens, including two stone pipes. I was almost positive they were "fakes," but thinking I could get some information concerning Mr. Cudney, I wrote to one of the leading dealers and received an answer like this: "I guess Mr. Cudney is all right." Not being satisfied, I sent one of the pipes to the Smithsonian Institution. In reply I received the following answer from Mr. Charles D. Walcott, Acting Assistant Secretary, viz.:

"In reply to your inquiry regarding the genuineness of the specimen marked No. 7, I have to say that it is contrary to the custom of the Smithsonian Institution to express opinions as to whether objects are genuine or otherwise."

So, you see, I did not get any satisfaction; but I had come to the conclusion that the specimens were bogus. I exchanged shells for what he sent me, and, in one of his letters, he said that he could not supply the demand, but would let me know when he found more relics.

I desire to thank you for the good work you are doing in behalf of the students of archaeology. I cannot understand why so many of the dealers are silent about the very thing that will decay the backbone of archaeology if the traffic in bogus relics is not suppressed. I appeal to all who are interested in the study of prehistoric man to come forth and lend their aid in downing the vast evil that is now confronting the archaeologist. Let a society be organized that will bind us together for mutual protection and advancement. The advancement of our favorite study in Europe is enough to put us to shame. Why? Because the different European governments have fostered and protected this branch of science. Let us organize and demand, as a scientific body, representing the United States, that we be protected in our endeavor to increase the knowledge of mankind.

Are we to always stand back and see the monuments of our American aborigines leveled, one after another, with the face of the earth? No, never! There is a vast amount of work before us. Let us not confine our fight to the one thing of warning against the makers of bogus relics, but let us look after the mounds, enclosures, etc., that are being destroyed for no other purpose than to fill empty pocket-books.

Recognizing the fact that in some cases a few words will do more good than a whole volume, I will close by asking, being that I have made the move, that somebody second it and start the ball rolling.

ALLEN JESSE REYNOLDS.

Connersville, Indiana. 1936 Virginia Avenue.

Editor of The Archaeologist:

Would it not be a good thing to have a Directory of Archaeologists—I mean a Directory containing the names and addresses of all persons in the United States who are specially interested in the study of that science, and also collectors of relics? In traveling it would be pleasant and convenient, having such a Directory, to call on brother students and collectors; and it would be quite an aid in the exchange of specimens. It might be published in monthly parts in The American Archaeologist so that collectors could have it on hand to consult if going on a journey, or in corresponding with others in different fields; and it would tend to an extension of acquaintance and better feeling among fellow students and fellow workers.

St. Paul, Minn.

EDWARD C. MITCHELL.

524 Summit Avenue.

[This suggestion of Mr. Mitchell's is well worthy of consideration. Such a Directory might also be made available in enlarging the circulation of The Archaeologist by offering a copy of it as a premium to each subscriber. Several years ago a Directory of all scientists in the United States and Canada was published at Boston in book form, and sold at two dollars per volume, which proved to be of great value to all who were interested in the same lines of study or investigation. And now, as then, to those seeking information, or desiring to buy, sell or exchange, it would often be quite a convenience, as well as assistance, for them to be able to refer to a ready list of the names and addresses of all of our Anthropologists, Ethnologists, Archaeologists, Philologists, Craniologists, Antiquarians, Historians, Collectors and Dealers. It would indeed be a good thing.—Editor.]

To the Editor of The Archaeologist:

My experience with humbugs of the kind you mention is exceedingly slight. Of course several attempts have been made to palm off on me one thing and another of professedly Indian make; but these attempts were made rather in a spirit of mischief, or of bravado, than with any mercenary object in view.

But, after all, is there not another side to this question? Those who walk with their eyes open into a gambling den intend to cheat or be cheated—to make or to lose; and when they lose it is not manly to howl about their misfortunes and call in the aid of the police.

"Collectors" of Indian relics are, as a rule, animated by either mercenary motives, or a desire to possess something different from, or better than that of some other fellow; or of what is in a museum. They are usually an unscientific and purely selfish lot of men, without a spark of public spirit, and are openly, or covertly, the enemies of large public collections. Not seldom they are almost totally ignorant of the subject they profess to have so much at heart. Generally, too, they know—in their own estimation—far more than those who, at least, ought to know more. When they buy a "fake" specimen they do so in the belief that they have got hold of a good thing cheap. They gloat over it; they boast about it; but when, from any reason they discover how they have been swindled, war is declared against fraudulent relicmongers. The collector got something for five dollars that he thought was well worth ten, or even twenty, or more; and congratulates himself on his shrewdness. When he discovers that his prize is not worth five cents, he then denounces the fellow he bought it of as a fraud.

"I got the start of you—that is all right: You got the start of me—that is all wrong"; and in the latter case he calls in the editorial policeman!

The intelligent collector and student of science—and there are many such—cannot be easily humbugged; and the imitator seldom tries to play his game on one of this class.

Now, observe that I am not in any degree trying to justify the impostor, notwithstanding the fact that he has so many examples in church, in state and in commerce. I am only questioning the right of the public, or any part of the public, to denounce through the press those who take advantage of public greed in this particular line. People want what they are pleased to call "curios," and if the would-be-wise man is sometimes duped, who shall pity him?

When untrue representations are made regarding supposed finds, we enter on quite another phase of the question; but is there not a law respecting the sale of goods under false pretenses? X.

[The above was written by the curator of one of the large public museums of this country—a gentleman and scholar of the highest attainments, who, for obvious reasons, prefers that his name shall not be made public.

We cannot agree with him that there is another side to this question. The purchaser being a fool, or a fraud himself, in no degree justifies the dealer in practicing deception. The curiosity-monger ought to know what he is buying before he pays for it; but his dense ignorance of the science he debauches is, in no view of the case, a palliation of the moral turpitude of the counterfeiter, or his accomplice, the dealer in frauds. The innocent purchaser, though without learning or honor, should be protected. The offering of spurious articles for sale is in itself a misrepresentation, for it is an implied assertion of their genuineness; and they who make, or offer to sell, an imitation Indian relic are as guilty of fraud as those who make or utter counterfeit money.

There are, to be sure, in the statutes of all our states, laws respecting the sale of goods under false pretenses; but the great inconvenience of enforcing them in this class of swindling, because of distance, difficulty of securing proof and insignificance of amounts involved, renders this mode of redress practically inoperative.

We can feel no sympathy for the ignoramus who will invest his money in such glaring frauds as Levering, Anderson, and some others, put upon the market; but there are relic counterfeiters who, by long practice, have mastered aboriginal art so perfectly as to be able to produce imitations that will deceive, and have deceived, the most "intelligent collector and student of science." There is no valid excuse for dishonesty; and the strong arm of the law should be made to protect both the intelligent and ignorant from the deceptions perpetrated by relic counterfeiters and their agents.—Editor.]

To the Editor:

In your August issue I read, with great interest, the different ideas and opinions therein expressed regarding bogus relics. I will not take issue with any of the gentlemen, for I know too well that many spurious relics are made. I only wish to call your attention to one or two points I am afraid overlooked so far in the controversy. I am, as you probably know, a dealer as well as a collector; and am now going to write of the subject from a dealer's standpoint altogether. The great majority of collectors want, and are always looking for, "snaps"; that is, for fine things or nothing—rare relics for a song. This is true, not only in prehistoric relics, but in all lines of curios. I have lost many a sale because my genuine specimens could not compete in price with the eastern-made imitations. Allow me to make a comparison: If you want a perfect diamond, don't go to a pawnshop to buy it, but pay some first-class jeweler a fair profit and get a genuine stone.

In your August editorial, page 217, you say only three dealers have answered your letters in which you requested their assistance in eliminating from the market counterfeits and imitations. I am afraid you wrote to the men running pawnshops. I will be only too glad to co-operate with you in any way I can to accomplish that end, especially in my locality. I have read with interest the suggestions made so far; but am of the opinion that your editorial to which I have referred, on page 217, will do as much, or more, good to stop these unscrupulous humbugs as anything. Allow me to offer my services to you. I am selling a great deal in the Eastern States, and it is to my interest to protect the good name of Arizona.

Under the heading of Notes, on page 221, you mention the find made by Dr. Fewkes, near Winslow, A. T. I have nearly a hundred pieces of pottery from the same place, dug out by the men employed by him. J. W. BENHAM.

Phoenix, Arizona.

[There is no doubt of the fact that foolish, selfish collectors, who know no more of the science of archaeology than they do of the Pandects of Justinian, who collect antiquities with no more sense of their scientific value than a crow would have, are responsible for much of the temptation offered to ignorant, mean and dishonest men to engage in the business of relic counterfeiting. Nevertheless, none but venal, ignorant and naturally depraved men would yield to such inducements and descend to such petty, contemptible methods of swindling. There are several of the pawnshops Mr. Benham mentions in this country; in other words, dealers so destitute of honor that they will sell any fraud that they can palm off on unsuspecting persons. They are more reprehensible than burglars or footpads, and are equally dangerous to society.—Editor.]

EDITOR'S DEPARTMENT.

DR. J. F. SNYDER, EDITOR, - - - - - Virginia, Ills.
 PROF. A. F. BERLIN, ASSOCIATE, - - - - - Allentown, Pa.

All communications for the Editor must be addressed to Dr. J. F. Snyder, Virginia, Cass Co., Ills.

Since the recent acquisition by the United States of certain islands inhabited by people who speak the Spanish language, many of our newspapers are urging the teaching of that language in our public schools. In commercial, official and social intercourse with our newly-acquired subjects it will be very convenient, and indeed imperative, for the present, and perhaps for several years to come, to communicate with them in their language, as they do not understand ours. In order to do this there must be employed persons conversant with both the English and Spanish languages to act as interpreters. But the number of persons so qualified required for this service cannot be very great, and will always be found at hand in excess of the demand for them. That less than five per cent. of all the pupils attending our public schools will ever come in contact with Spanish-speaking people is a very conservative estimate. Seventy per cent. of our people are in daily intercourse with German-speaking citizens, yet it is not necessary that we must all be German scholars. Instead of making the Spanish language a requisite branch of our public school curriculum, every consideration of public policy and of our nation's welfare dictates that the islanders now coming under our flag shall be offered every inducement and facility, if not compelled by law, to learn the language we speak, in order to more rapidly perfect their absorption and assimilation in American citizenship, and effect their identification in our national unity. This end cannot be speedily accomplished by making a Spanish-speaking people of us; nor will this object be attained within the span of many generations if we rely alone on the compulsory teaching of the English language in the public schools of our island possessions.

It has been half a century ago since New Mexico became a territory of the United States, and though penetrated by railroads and telegraphs, and, to some extent, taught by American schoolmasters, two-thirds of its population are still Mexicans who know no other language but the Spanish. The greater part of all commercial and social intercourse is carried on in Spanish; and though the law there compels all official and legal procedures to be conducted in the English language, interpreters are indispensable in the courts of justice to translate their proceedings to Mexican juries; and nearly all legal notices, advertisements and ballots are printed in Spanish. If that territory was today admitted into the Union as a state, without restrictions of the right of suffrage, all of its elective offices, from constables to United States senators, would be filled by Mexicans; and Spanish would be made the permanent official language. To avoid this certain result it has been proposed that before its admission to statehood the qualifying act shall base the right of voting upon ability to read and write the English language—a qualification for suffrage that should be engrafted in our national constitution as an amendment, and be made part of the fundamental law of every state and territory. Political science, as well as that of sociology, assumes it to be the duty of the foreigner migrating to this country, to become a citizen and enjoy with us our liberty and the blessings of our free institutions, as also that of the recent alien who has become a citizen of this republic through the exigencies of war, to adopt our language and usages, and in all respects be transformed into an American in the shortest time practicable. In the public schools maintained by compulsory taxation no language should be

taught but English. America cannot be Germanized, or Spanishized, but all foreign elements must be commingled and assimilated, by the most expeditious methods, into one homogeneous American people, or be set aside as refuse material. The Americanizing process has been retarded in New Mexico by natural causes, chief of which are the sterility of its soil, its remoteness from commercial centers and its proximity to old Mexico. Had it possessed the agricultural possibilities of Kansas, or even Texas, the restless, pushing Americans would long ago have converted its Mexican population into quasi Yankees, or crowded them out of every nook and corner of it.

A Presbyterian missionary who had labored for years in one of the southern provinces of Brazil, abandoned his field in sore disgust and returned to his home in Indiana. In answer to the inquiry how he had succeeded in proselyting the mongrel people of that distant region, he frankly admitted that he had accomplished very little, if anything; and said the only way in which that country could be Protestantized was by populating it with a more intelligent and progressive race; the present one there was utterly incapable of improvement. By this plan of substitution Texas was, racially, very quickly revolutionized and transformed from a Mexican province into an American republic and subsequently a state of the Union. By the same course our lately-acquired islands will also become quickly Americanized. Their soil, minerals, and many other natural resources, are alluring incentives to the capital, industry and enterprise of this country. Hordes of eager, nifty, wide-awake speculators from the north will rush into them and soon displace the slow-going Latin occupants, and organize new American states, repeating the history of California and Texas. This peaceable, political, social and racial revolution is inevitable and soon to be consummated; hence, we can see no necessity for teaching Spanish, French, Kanaka, German or Malay in our public schools.

The next annual meeting of the American Association for the Advancement of Science will be held in August, 1899, in Columbus, Ohio. It is very gratifying to notice that Prof. Thomas Wilson, LL. D., chief of the Department of Prehistoric Archaeology in the Smithsonian Institution, has been selected to preside for the ensuing year over Section H of the Association, comprising the sciences of Anthropology, Ethnology and Archaeology. The convening of this great body of the most distinguished scientists of America at the former seat of one of our ancient and most highly cultured aboriginal people, as well as the present home of *The American Archaeologist*; and the section of the Association in which *The Archaeologist* is very deeply interested having been given in charge of one so eminently well qualified to preside over its deliberations, inspires us with the hope that all archaeologists of the west will vie with those of the east in making the proceedings of the Columbus meeting of next year, and particularly those of Section H, memorable in the annals of the Association. In due time, next spring, this magazine will publish the full program of the meeting, and all information necessary for those who contemplate attending it. And we, now, extend a cordial invitation to all scientists visiting Columbus at that time—and at all other times—to call at the sanctum of *The Archaeologist* and receive the homage of our respect and esteem.

Major F. F. Hilder has resigned the position he held as Assistant Secretary of the National Geographic Society, and, we are much pleased to state, has accepted that of Ethnological Translator of the U. S. Ethnological Bureau. In this new office his special duties will be the translating and editing of archaic Spanish documents relating to the history and ethnology of old Spanish America;

a work for which he is, by taste, education and years of study and of residence in Central America, remarkably well fitted. Major Powell has been exceedingly fortunate in securing the service of such an efficient and well equipped assistant, a gentleman whose learning and versatile abilities will materially enhance the scientific labors of the bureau.

Mr. M. C. Long, of Kansas City, Mo., has placed his fine collection of prehistoric Indian relics in the Library building of that city as a nucleus of a public museum to be founded there. Judging by the press accounts of this collection of Mr. Long's and of what we know of him as an enthusiastic, intelligent and competent archaeologist, we congratulate the people of that enterprising city on their good fortune in having among them such a generous and public-spirited citizen. It remains now to be seen if his enlightened efforts for the promotion of scientific studies in his community will be duly appreciated and substantially seconded. Every city with the population that Kansas City has should have an institution of this kind well maintained by municipal appropriations; for museums of natural history and archaeology are the most valuable of educational agencies for all classes.

We established the rule at the beginning of this publication to exclude from its pages all controversies of a purely personal nature, except for special cause. There is a general impression that the admission of an advertisement in this magazine implies a guaranty on our part of the integrity and reliability of the advertiser. We, of course, disclaim any responsibility of this kind, publishing advertisements as we do the various opinions of contributors, and leaving the public to judge of their merits. A case in point justifies an infraction of our rule by noticing a personal wrangle between two of our patrons. Mr. J. W. Tweed, of Ripley, O., seeing that Mr. G. M. Sherman, of Springfield, Mass., advertised in the *Archaeologist* his willingness to sell Indian relics on commission, straightway shipped him a lot for sale. Mr. S. acknowledged their receipt and said he would make out and forward a list of the articles so as to avoid any mistake. Time passed, no list came, and in answer to Mr. T.'s inquiry Mr. S. said he had not yet received the freight bill, and requested Mr. T. to send him a list of the relics. More time and several letters passed, Mr. S. representing that he could not get the freight bill from his expressman, and finally informed Mr. T. that he could not sell the relics, and on receipt of freight charges he would return them.

In this matter Mr. Tweed should not have relied on the advertisement of Mr. Sherman because of its prestige in appearing in this magazine, but should have had a definite understanding about the disposition of the collection before shipping it. And Mr. Sherman, after acknowledging receipt of the package and promising to forward a list of its contents, certainly acted in bad faith in not doing so, and also in making his expressman the scapegoat for his own want of straightforward business methods.

Another case in point is the complaint of Mr. R. Steiner, who, also seeing Mr. Sherman's advertisement in the *Archaeologist*, shipped him 2500 specimens to sell on commission, and then was requested by Mr. Sherman to send him another consignment, which Mr. Steiner did not see fit to do; thereupon Mr. Sherman informed him that the relics he had already sent were valueless; and Mr. Steiner says he has heard nothing from Mr. Sherman since. We have all the correspondence in these two cases and may publish it in full if these matters are not satisfactorily adjusted; for the *Archaeologist* cannot afford to be made an unwilling party, through its advertising columns, to transactions that are not strictly business-like and honorable. The *Archaeologist*, though not courting the unpleasant and unsatisfactory office, is ready to act as arbitrator in the busi-

ness disagreements of its patrons when requested to do so, but would much prefer that all such affairs would be settled privately by the parties interested, if possible.

The wholesome results of our crusade against bogus relic makers and their accomplices are becoming quite apparent. In a letter, now before us, written by S. W. Robinett to one of his patrons, he says he has quit buying (?) ceremonial crooks. Wm. Cudney, of Galt, Ont., writes that he has gone out of the relic business. Fine bird points are now not found so numerous in Ohio as they were a few months ago. Levering and Anderson have shut up their factories for want of customers, and collectors are learning to see that specimens are genuine before paying for them. And yet the work of purification is not nearly accomplished.

BOOK REVIEWS.

Researches in the Uloa Valley, Honduras. By George Byron Gordon. Cambridge, 1898.

Unfortunately for science, the present government of Honduras suspended the concession granted to the Peabody Ethnological Museum by the preceding administration for the exploration of the ruins of Copan. In consequence of this action, Mr. Gordon, on arriving there, in 1896, to continue the work on those wonderful ruins that he had before so auspiciously commenced and well prosecuted, was prohibited from doing so, but was permitted to make some investigations in the valleys of the Uloa and Rio Chemilicon farther north. He found there no remains of stone edifices, and but one rudely carved stone image, but some interesting earthen mounds buried in the dense forest; and, near the banks of the river, many pottery specimens, including vases, whistles, ornaments, etc., evincing the same culture as that of the Copan period and people. His exploration of some of the caves high up in the mountain ledges overlooking the streams, resulted, as did Prof. Mercer's in the caves of Yucatan, in demonstrating the fact that no primitive people had inhabited that region prior to those who built Copan.

These later researches of Mr. Gordon's for the Peabody Museum, of Cambridge, are comprised in two monographs issued under one cover, and constitute Nos. 4 and 5 of Vol. 1 of the Memoirs of that institution.

The Northwestern Archaeological Survey. By Prof. T. H. Lewis. Under the Auspices of Alfred J. Hill. St. Paul, Minn., 1898.

The peculiar business and professional relations that existed between Mr. Hill and Prof. Lewis for several years were the subject of a great deal of comment, speculation and criticism adverse to Prof. Lewis, among certain classes of citizens in and about the twin cities of the Northwest. To satisfy public curiosity, and as a sort of personal vindication, Prof. Lewis has issued this little pamphlet of sixteen pages fully explaining the work in which he was engaged, his obligations and duties, and the pay he received.

Alfred J. Hill, a gentleman of wealth and fine literary and scientific acquirements, resided in St. Paul for many years, until his death in June, 1895. Prior to the year 1881 he had commenced the collection of necessary material, and began the work of making a comprehensive survey and study of all the principal archaeological remains of the Northwest; and in that year engaged Prof. Lewis, who had also contemplated the same gigantic undertaking, to take complete charge of all the details of the survey throughout all the territory, extending from the extreme sources of the Mississippi river down to the great Cahokia mound, in Madison county, Ill.; and from the Missouri river on the west to the eastern

boundary of Indiana. Mr. Hill, in his part, agreed to make all the maps demanded for illustrating the survey, and to pay Prof. Lewis three dollars per day and necessary expenses for all the time in which he was actually employed; and Prof. Lewis contracted for said consideration to do all the field work and finish up the maps and diagrams.

This great work was never completed; but in the sixteen years of its continuance there were located and surveyed within the limits of the State of Minnesota 7500 mounds; and many surveys of mounds, effigies and embankments were made in Manitoba, both Dakotas, Iowa, Nebraska, Missouri, Kansas, Illinois, Indiana, Wisconsin and Michigan, at a total cost to Mr. Hill of \$16,200. During the progress of this work, and after Mr. Hill's death, Prof. Lewis published as his own, and sold, many of his special surveys, some illustrated by maps drawn by Mr. Hill, without giving his employer credit for any agency in them. This, and other acts of Prof. Lewis, occasioned much comment and drew upon him severe censure from different quarters; and to justify his conduct and explain the nature and extent of his services, liabilities and duties while associated with Mr. Hill, he issued this pamphlet.

Of the results of his labors Prof. Lewis says: "At the end of three years from the death of Mr. Hill, the estate was turned over to the representatives of the heirs, and it is understood that the survey—which cost them nothing—will be taken to England, where so many valuable documents pertaining to the history of America, and the world at large as well, have been buried in oblivion. It is quite probable that it will be kept as an heirloom costing a fabulous sum of money, and, after a few years, assigned to the solitude of the garret, or given to some museum where it will be utterly worthless on account of its incompleteness and a lack of interest in the region from which it came. To thus dispose of it would seem to be rather shortsightedness, for if left in America it could easily have been cared for and in time would have fulfilled the mission for which it was intended by its projectors—a contribution to the knowledge of pre-historic America."

"The American Journal of Sociology," edited by Albion W. Small and associate professors of the University of Chicago, for September, is an exceedingly interesting number, with the following table of contents: Municipal Playgrounds in Chicago; illustrated by Charles Zueblin. The Movement for Small Playgrounds; Sadie American. The Delusions of Durkheim's Sociological Objectivism; Gustavo Tosti. The Relief and Care of Dependents, VI; H. A. Mills. The Instinct of Workmanship and the Irksomeness of Labor; Thorndien Veblen. Politics in Public Institutions of Charity and Correction; Charles H. Henderson. Seminar Notes; Methodology of the Social Problem; Albion W. Small. Reviews, Notes and Abstracts. The University of Chicago Press.

NOTES.

In the September Century, Dr. Daniel G. Brinton has an article on "Popular Superstitions." In closing, he says:

"For some strange reason there has been a wonderful revival within the last decade of nearly every mediaeval superstition, under various guises, in the most enlightened centers of the world. The practitioners of this modern sorcery, instead of concealing, advertise their claims and urge them on the community under pseudo-scientific names and jargons.

"Palmistry, astrology, sympathetic magic, the doctrine of signatures, hiero-therapeutics and all the farrago of Fifteenth Century thaumaturgy, flourish today in Boston and New York, in Paris and Chicago, to a degree surpassing anything known three centuries ago.

"There is a reason for this. Sorcery is science seen upside down. There is a confused groundwork of truth, a fallacious method of viewing facts at the basis of these pseudo-sciences. Yet the truth and the facts exist and these explain the suc-

cess of the deceptions. They dazzle and daze minds not trained in sound reasoning, and how few are?

"The societies for 'Psychical Research' and theosophic speculation begin with an acknowledgment of the possible truth of ghost-seeing and of communion with the Divine. This possible ground is seized by the charlatan, as proved basis for his illusory edifice.

"Superstitions are at core the same everywhere and at all times, because they are based on those desires and that ignorance which are and will ever be a part of a man's nature. He is dimly aware of mighty, unmeasured forces in ceaseless activity around him, controlling his own destiny; the ominous and omnipresent portent of death meets him at every turn; dissatisfaction with his present condition, intense longing for a life and joy which it can never offer, goad him to seek a knowledge which weights and measures are impotent to accord him. Yet such restricted knowledge is all that science can supply. Therefore, he turns in despair to the mystics and the adepts, the Cagliostro and the Humes, who stand ready to beckon him into their illusory temples of folly."

Among collectors it has been the fashion for some time to gather the old Indian basket ware made by some of the California Indians, which is fast becoming rare. Now it isn't necessary for the collector of this kind of ware to become at all uneasy, for somewhere near Denver, Colorado, is a factory where are made these old baskets as well as other kinds of antiquities, says the "Times," of Visalia, Cal., under date of June 22, 1893. "By proper manipulation the baskets so manufactured are given the appearance of the genuine article. We are credibly informed that quite a number of the bogus articles have been shipped to this country and palmed off on unsuspecting curio-collectors as genuine specimens.

In the vicinity of Tucson, Arizona, near the upper end of a cave or drift, 186 feet long, was recently discovered by a party of men from the above town a number of Indian bows, arrows and other trinkets. Another interesting relic picked up was a bracelet made of shells and bones. It is understood another investigation is to be made.

It is curious to what an extent the mutilation of teeth goes on among savage nations, and even among certain civilized people, such as the Japanese. With them a girl is never married without first staining her teeth black with a repulsive kind of varnish, and the custom is especially adhered to among members of the richer classes.

On the west coast of Africa a large proportion of the teeth are deliberately broken when children reach a certain age. Both in the New World and in the Old the custom exists of extracting the two front teeth of domestic servants. In Peru the custom has existed from time immemorial, and used to be a sign of slavery in the days of Incas. This is also the custom on the Congo and among the Hottentots. Teeth are stained in various colors among the Malays.

A bright red and a bright blue are not uncommon, and a bright green is produced with the aid of arsenic and lemon juice. Livingstone related that among the Kaffirs a child with a prominent upper jaw was looked upon as a monster and immediately killed. On the Upper Nile the negroes have all their best teeth extracted in order to destroy their value in the slave market and to make it not worth while for the slave-traders to carry them off.

The new Museum of Archaeology for the University of Pennsylvania, work on which was begun in January, 1897, will not be finally completed until the first of next year. The lot at Thirty-fourth and Spruce streets, overlooking Franklin Field, will then be able to boast one of the handsomest buildings in the University settlement. The estimated cost of the new structure is \$500,000. The architecture is a fair specimen of the style which most obtained in Northern Italy during the earlier half of the Middle Ages. Coarse brick will be the principal material used in the exterior construction, and this will be relieved at the arches of the windows by marble.

The plans for the extension of the museum have been evolved on an elaborate scale. When they are finally realized there will be a great group of buildings occupying the whole of the vacant lots southeast of the present museum, and running as far as the western end of South street bridge. The first of these is built on three sides of a quadrangle. The Spruce street side is open, the eastern and western wings running close to the Spruce street front.

The building is surrounded by two walls of rough brick, supporting terraces. The outside wall varies from 18 inches to two feet in height, the inside one is from six to eight feet. Directly in front of the main entrances is a rectangular pool, and leading thereto are numerous paths. The court yard will be further embellished by landscape gardening.

The Central hall, for exhibition purposes, has a floor space of 3000 square feet. Two other similar halls on the left have about 2000. A reference library will occupy the front of the eastern wing, of which the western will be a copy.

A. F. B.

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ART IN PREHISTORIC TIMES.

(By Thomas Wilson, U. S. National Museum.)

Many volumes have been written on the History of Art, the Origin of Art, the Dawn of Art, the Beginning of Art, the Evolution of Art, the last one, just appeared, on What Is Art? Some of these have been large, heavy works of two volumes, attempting to cover the world in their investigations and treating of art in every style, and in every nation. All of these, with a single exception, begin with historic art, like Chaldean, Assyrian or Egyptian, practically ignoring prehistoric art. I have sought to remedy this in a new work now going through the press entitled Art in Prehistoric Times. Its entire field lies in the prehistoric, and is earlier than any of the works mentioned, indeed, mine ends where they begin. Before we proceed let us consider the question posed by Tolstoi, "What Is Art?" But first let us say what it is not. It is not necessarily to be measured by the beauty of its works nor the amount of pleasure they give the beholder or listener. Indeed, it may be the reverse. A work of art may derive its principal value from the amount of awe and fear it produces. Wiertz was an excellent painter, but his gallery at Brussels is little better than a chamber of horrors. Shakspeare's tragedies rendered by accomplished actors excite emotions of horror and dread. The master-musician sometimes extorts the warmest plaudits by playing a scale or number, purposely false, thereby showing his art by his power over his voice or instrument.

Darwin, Spencer, Schiller and others have defined art, but in nearly all there is something faulty in their definitions. Veron says art is the manifestation of human emotion externally interpreted by expressive arrangements of line, form or color, or by a series of gestures, sounds or words, governed by particular rhythmical cadences. To this Tolstoi adds the condition that the second party, the beholder or listener must be the recipient of these emotions. This definition would revive the ancient discussion as to what is sound? Wherein it was agreed that making waves of air was necessary, but suppose, as in the case of a tree falling in the distant wood, there was no one to hear it. Certainly it would be sound, whether heard or not. So the other would be art even without a beholder or listener.

Emotions, whether grave or gay are interpreted or manifested in some of the following methods: when by color, the art is painting; when by line, it is drawing or engraving; when by form, it is sculpture, and a combination of these may produce architecture. When the emotion is manifested by gesture or human rhythmic movements, it produces the dance, when by rhythmic notes, music, when by rhythmic words, poetry. Certain of the arts appeal to the brain through the organs of sight; painting, sculpture, engraving, architecture and the dance; while

certain others appeal through the organ of hearing, poetry, music and the drama. In the former group action is arrested and the representation is confined to a single moment of time; in the latter group the action is continuous. But the laws as to art govern both groups alike.

A work of art is the ideal of the artist. It is his own thought or idea, is a part of himself, not nature as it actually is, but as he sees it, as he idealizes and depicts it.

The great, if not the principal, difference in the ability of artists or authors lies in the difference in their ideals, which is only another name for their taste. Taste is born with the individual and to a large extent is involuntary. True, it can be practiced and improved, and by want of thought or use it may deteriorate. But with all this it has its limits. One who cannot naturally and easily detect concords and discords of sound can never become a good musician; and he who cannot recognize harmonies of color will never become a great painter.

Despite all arguments favoring the evolution of man as a species, we must recognize that ever since man has been known on earth he has had all the powers and capacities of man, and along with them, the taste and ideality needed for an artist. So soon as he came to know art, to have a taste and an ideal, he seems to have had a desire for art objects. A desire to have them appears to have been equivalent to a desire to produce them and so man began to make art works in times of high antiquity. Art seems to have been the germ of civilization rather than to have been its flower or fruit. This is not a priori theory, for, investigating the facts and interrogating his former habitude with pick and shovel we find that he actually made and had many pieces of considerable beauty, even if of no value, purely for ornament and consequently to gratify his artistic taste and give him pleasure.

This puts him on the level with modern man and ascribes to him the same motives and tastes that influence modern man to do his art work.

These manifestations of aesthetic art began in the earliest known period of man's civilization on earth, the Paleolithic. Whatever differences there may be among prehistoric archaeologists as to details, they agree in the most important fact, i. e., that the human occupation of the earth is to be traced to the quaternary geologic period. It is not to be measured in years nor by any of our time units. It is simply to be described as a prior geologic period. The human race was then in its infancy. The man of that time was a savage. He did not bury his dead, he built no houses. He erected no monuments, he was a hunter and fisher, he was a nomad, had no local habitation, dwelt in no villages except such as could be so called from a number of people living in a cavern for shelter.

He had no tribal organization, no sociology, no belief in a future state, and consequently no religion. At least, no evidences of any of these things have ever been found associated with his remains, while they have been found among his successors.

Yet this man occupies, in the Solutr  en epoch, the highest rank as a flint chipper, and in the succeeding, the madelanien epoch, a correspondingly high rank as an engraver on bone and ivory.

His material (in the latter epoch) was the bones, horns and tusks of the animals which were his prey. His tools were sharply chipped points or gravers of flint. Most of the specimens of his art work are found in the caverns which had been his habitations. No one has sufficient knowledge to justify the declaration that this art work belongs exclusively to western Europe, but certain it is that most known specimens have been found there. They are chiefly from the caverns of central and southern France. About four hundred such specimens have been

found and preserved, yet no one can know how many have been missed or remain undiscovered. The specimens found in caverns were originally thrown aside, lost in the debris, and finally protected by stalagmitic or other process of induration. They are usually enveloped in blocks or slabs, which, by infiltration, have become hard and must be quarried like stone. In bringing these to light in modern investigations, many specimens must necessarily be broken, while those in the interior of the block or slab are never discovered.

A few specimens of the art work of the paleolithic period are purely decorative, but most of them are representations of the animals of the period and locality. Many animals now extinct are represented and in this way knowledge of their form and appearance has been preserved to us.

The animals most frequently engraved were the mammoth, cave-bear, Irish elk, musk-ox, reindeer, chamois, mountain goat, urus or auroch, horse, deer, and similar animals, and finally man. Marine animals were well represented: the seal, sea lion, tortoise turtle, fishes and serpents. Some of the objects thus treated were utilitarian. *Batons de commandement*, poniard or dagger handles, harpoons and similar objects, while others were purely ornamental, only toys, playthings. Many were so broken as to destroy all clue to their purpose. This was the art of the paleolithic period.

That of the succeeding, the Neolithic and bronze ages (of Europe) was quite a different style. It was almost entirely decorative, marked or cut on pottery and bronze objects of utility. There was little or no attempt to represent living or material objects. The art of these periods (still in Europe) consisted mostly in geometric forms, as lozenges, chevrons, herring bones, zig-zags and cross-hatch. The Swastika seems to have been used throughout the latter period, and to have been the earliest symbol in use among men.

The North American Indian and his congeners of the Antilles were also in the Neolithic or polished stone age of culture, and their decorative art was practically the same as that age in Europe. They excelled their European brethren, however, in making rude drawings and pictures, principally petroglyphs, many of them, possibly ideographs, telling a story by their own description. They often reproduced the human figure, while the European rarely did. The aborigines of Mexico, the central and northwestern part of South America, although still in the stone age, reached a higher civilization, mainly manifested by the erection of extensive and magnificent temples, fine stone sculpturing and ideographic language.

In closing, we are tempted to inquire why did the savage man take upon himself the additional labor of making, constructing, erecting all these, to him a savage, unnecessary works and objects. The answer suggested is because he desired to have them; they gratified him, they gave him pleasure; they satisfied his aesthetic taste for beautiful things, and to obtain the required gratification he was willing to undergo the necessary labor and to endure the necessary fatigue. In respect of the desire for art and art works, things beautiful, wherein is the difference between the prehistoric savage who dwelt in caverns and his modern brother who dwells in a palace?

*Read before the American Association for the Advancement of Science, at its meeting in the city of Boston, in August last.

OUR DIGGER INDIAN NEIGHBORS.

Second Paper.

Later in the autumn, when the acorns had ripened and began to fall and the noisy woodpeckers had commenced storing them in the myriads of separate holes they had drilled for them in the thick bark of the stately white pines, there occurred another gathering of our Indian neighbors on the little flat where a short time before they had incinerated the dead body of one of their brothers. This hill-encircled creek bottom, or natural amphitheatre, we learned, was an old council ground or place of rendezvous for conferences, ceremonials and festivities of this band; and that they had met here this time for their annual three-days' acorn dance and feast. The hollow bumblings of their drums, sounding like the measured strokes of distant machinery, was the first intimation we had of their assembly; and as it continued all day without cessation, we concluded, after supper, to go over and see what was going on. We had by this time established friendly relations with them and without hesitation walked down to the border of their arena, and there finding seats on convenient rocks remained a while, uninvited and unnoticed spectators of their barbarian entertainment. There were about the same number collected together as on the former doleful occasion, with some noticeable increase of clothing in the aggregate and considerable more display of ornaments in the way of beads, shells, buttons, feathers, etc., both by the dancers and the squaws. The mourning, pitch-and-tar enameled females before mentioned, were conspicuously of the number and as mirthful as any of the party. The jubilee had commenced in the early morning and was at its height when we arrived and continued without abatement far into the night, perhaps all night, as the droning drum-beats were the last sounds we heard when sleep overpowered us in our cabin bunks, and the first that grated on our ears on awakening next morning. The two drums constituting the entire orchestra, were merely sections of a hollow tree, two feet in length and a foot in diameter, with rawhide drawn tightly over one end of each. These were continually beaten with smooth, pine sticks by old men, who at intervals were relieved by other old men, but without a minute's intermission or the slightest variation in time or strength of stroke. Only the adult males participated in the dance, none of whom were entirely naked. A few had on shirts, confined around the waist with string or belt, and others wore only breech cloths extemporized from different materials, ranging from dressed deer skins to second-hand calico or canvas. Several of the dancers had feathers and small, leafy twigs fastened in their hair. A few had necklaces of glass beads and each one carried his strung bow in his left hand and a few stone-pointed arrows in the right; and over his shoulder hung his quiver, made of the untanned skin of some small quadruped. None of them were painted and all were barefooted. The "dance" was a curious walk-around. With the body slightly bent forward and the knees partially bent, they went around and around a central fire, in a circle thirty or forty feet in diameter, stepping high and stamping the ground at each step; partially turning to the right and to the left as they went and swinging the hands forward and backward, as in walking. This movement was accompanied by the continuous guttural exclamation of "hut-lut," "hut-lut," "hut-lut," repeated for some time, then followed by a loud "hoo!" with which the hands holding the bow and the arrows were thrown up and forward toward the sky. This monotonous chant—if it may be dignified by that designation—was at intervals interspersed with a loud, sharp whoop; but there was no conversation or any notice taken of each other, and the whole procedure was characterized by the utmost solemnity and earnestness. The stamping and contortions of the body and vigorous gesticulating was severe exercise; but was continued in a

spirit of devotion or emulation until their smoke-colored skins were streaming with perspiration, and sheer exhaustion compelled them to drop out of the circle for necessary rest and refreshments, to again resume their places in it when sufficiently recuperated. The stoical seriousness of the men in their gyrations was in strange contrast with the gayety of the women, who stood or squatted around in groups watching the dance, chatting in great glee and apparently enjoying the performance as fully as their pale-face sisters of the present time do a circus.

In the meantime the feasting was going on by relays of fresh recruits as uninterruptedly as the dance. A number of brush huts had been erected at the foot of the slope near the branch as resting places and dormitories for the women and children and fatigued men. And near by these, on the bank of the little stream, was the culinary department. Here the cooking—such as it was—was done by the old women, aided by the larger children, all of the latter being entirely naked. The culinary art had not, with them, progressed beyond the most primitive principles; nor was there much variety in their menu. A mixture of finely-pounded acorns, manzanita berries and various other ingredients, was poured into large water-tight baskets, with water enough added to dilute it to a gruel-like consistency; and into this were thrown heated stones and the whole steadily stirred with sticks until it was cooked into a mush-like mess of nauseating nastiness. To this, when sufficiently cool, each helped himself or herself at pleasure by ladling it out of the basket into the mouth with the hand. They had beside this a quantity of beef or horse meat, from which each hacked off a convenient piece, as dictated by hunger, and broiled it on the coals or held it on a stick in the fire until done to suit the taste, and ate it with the acorn porridge or alone, and with as much zest and relish as any old forty-niner could have experienced in stowing under his belt the finest of dinners at the Palace or Oriental, in San Francisco.

Though unvarying and extremely monotonous, the novelty of the exhibition and its wild surroundings, the weird posturing and movements of the dancers, their stolid faces, strange utterances and impressive gestures, presented a phase of savage life and thought of rare and exceptional interest.

The acorn festival closed—at any rate the noise ceased—about the middle of the third night, and the next morning the place was deserted and silent. Then acorn gathering and storing for the winter use began, and we daily saw the squaws bending under the weight of their huge basketsfull, toiling up the mountain to deposit their loads in the acorn cribs. The basket used for this purpose was conical, or funnel-shaped, of two or more bushels capacity, and was held on the back of the human beasts of burden by a strap passing around it and across the forehead. The acorn crib, usually hidden in clusters of bushes up the mountain side, was ingeniously constructed of poles set upright, ten or twelve inches apart, in circles of four to six feet in diameter. Two or three feet above the ground stout sticks were set across and lashed to the standing poles, forming a floor above snow or dampness; and this, as well as the wattled uprights, was heavily lined inside with dry grass and pine leaves. When filled with acorns, the whole was neatly covered with interwoven twigs and securely thatched.

The reduction of acorns into meal for food was all done by the squaws. They had no portable mortars, so far as I could observe, though I found in that region a few more or less well-finished stone mortars, made by hollowing out huge spherical boulders of trap or basalt, ten or twelve inches in diameter. None of these, however, were seen in use. Along some of the mountain streams where slightly elevated level offsets of the rock occurred, were always found the

stationary acorn mortars of the squaws. Not far from our cabin was one of those horizontal stone platforms, three or four feet high, and from four to six feet wide from the edge near the creek to the perpendicular cliff behind, and some thirty or forty yards long. In this natural shelf were mortar holes every few feet, sunk in the level rock from eight to twelve inches deep by four to eight inches in diameter. Every day for some months a number of squaws gathered at this place with baskets full of acorns, which they converted into meal. These dusky daughters of the forest were at no time superbly picturesque or prepossessing objects, and pounding acorns added nothing of poetry to their movements or figures. With only scanty breech cloths, and occasionally one with a bead necklace, in the way of dress, sitting flat on the stone at the edge of the mortar hole, with "limbs" extended on either side of it V-like, each industriously wielded with both hands a heavy stone pestle. Every stroke of the pestle forced up from the mortar some of the more finely crushed particles of the acorns, which settled on and around the squaw's nude anatomy in near proximity. When it had accumulated there for some time she would lay aside her pestle, and with a wisp of dry grass or a few small twigs tied together for a broom, carefully brush all the scattered meal back into the mortar from over, around and under her, and again sedately resume work. This latter feature of the industry, as a measure of economy, was commendable; but viewed from an epicurean standpoint, was not well calculated to sharpen the appetite for that brand of acorn meal.

The acorn was for these Indians the staff of life, as wheat is for us, with the advantage over our cereal that the acorn crop there never failed, was always abundant and required neither sowing, cutting or thrashing, but only gathering, storage and grinding. While it was their most important and constant article of food, it was by no means their only reliance. They ate wild fruits and nuts in their seasons, and were very expert hunters and fishermen, with a range of game practically unlimited by gastric incapacity or refinement of taste. I saw them feast upon the choicest venison, quail, pheasant and mountain trout; and also—with apparently equal satisfaction—upon crickets, lizards, rats, owls, and the flesh of horses, mules and oxen that had died by the wayside from exhaustion, sometimes several days before. Though known as "Diggers," they were not—so far as my observations extended—root diggers, as I never saw them digging roots or anything else from the ground. Their baskets, exceedingly well made, though none of them remarkably fine, were woven from reeds and certain species of grasses.

These Indians were not gregarious, but lived in isolated brush and bark huts in sheltered nooks in the mountains, one family, or at most two or three, occupying a locality remote from all the others. Their tribal organization, if they had any, must have been very rudimentary. No individual among them seemed to exercise any authority over the others; and the family, no doubt, constituted not only the unit, but the highest element of their social life.

At the time of my acquaintance with them, though they ate or drank with avidity anything we offered them from our tables, they had not progressed toward civilization so far as to acquire taste for whiskey or tobacco. Our communication with them was altogether by pantomime, they being too dull to master our language and we not trying to learn theirs. In time, however, they succeeded in catching some of the commonest profane expressions of the miners, which they pronounced intelligibly, and glibly used to emphasize the difficult passages in their sign conversations. They were timid, inoffensive and indolent, and, with fine mechanical skill developed by the inexorable strife for existence, were morally and intellectually perhaps the lowest of all American Indians.

J. F. SNYDER, M. D.

ABOUT GUN FLINTS.

From the earliest times flint has been employed as a fire producer. In classical writings allusions are made to knives and other implements of flint. The use of flint and steel to produce fire is very pointedly described by Virgil. About the middle of the Seventeenth Century a gunlock was invented in Germany by means of which the spark from a flint was utilized to ignite the powder and fire the gun. The form and action of this gunlock continued in use, almost without modification, down to the year 1834, when it was superseded by the discovery of fulminating powder and the introduction of the percussion cap lock.

Flint, in composition, consists of almost pure silica, partly in the crystalline, or non-soluble, quartz form, and partly in the crystalline soluble state. It contains lime, iron and alumina, and when the proportion of lime present is large, it passes into chert. When freshly obtained from the pits the water of crystallization contained in the flint renders it readily flaked; but after exposure to the air it becomes hard, more brittle and intractable. Its origin is not yet satisfactorily explained; but as traces of marine organisms which flourished in the Cretaceous period are almost invariably found in the nodules, it may be safely assumed that the siliceous matter, in solution, was partly derived from those organisms which formed nuclei, around which the soluble silica accumulated.

The material from which the great bulk of the gun flints in England were made was found in the upper chalk beds, and other limestone deposits, in the County of Norfolk. It there occurred in horizontal layers of small flints, and in irregular nodules, of pear-shaped outline, varying in size from a few inches in diameter to three feet in length by a foot in thickness. These nodules are found imbedded in the chalk at right angles with the horizontal layers of small flints. A noticeable feature about this formation is that the various beds of flint have a uniformly distinctive character as regards color and composition. The mining of flint was effected by sinking in the chalk a narrow pit about four feet deep, then continuing it a like distance in a horizontal direction, and so on in a stair-like series of burrows, until a suitable strata of flint was reached. By this method of short galleries the workmen were enabled to pass all excavated material to the surface by hand.

In the manufacture of gun flints three operations were required; first, the nodules were broken into cubes of convenient size, about six inches square; the second operation, called "flaking," consisted in striking off, by carefully directed blows, from the cubes flakes of uniform thickness extending from end to end until the cube was exhausted. The third manipulation, termed "knapping," was a dexterous cutting, or breaking, of the flakes into the requisite size for finished gun flints. An expert flaker could strike off from seven to eight thousand flakes per day of twelve hours.

The manufacture of gun flints was also carried on in Germany and France; but the difficulty of procuring in those countries the raw material of desirable quality and in sufficient quantity, gave England, having a superior article of unlimited extent, a practical monopoly of the industry. The making of gun flints was still profitably conducted in the villages of Suffolk, Brandon and Icklingham, in England, as late as the year 1876, in which year 80,000 gun flints were exported weekly. The greater portion of these were shipped to the west coast of Africa.

The tools employed in modeling the flints were three simple forms of the hammer and chisel. It is probable that the only essential modification these tools have undergone, since primitive man first began the working of flint, has been in the substitution of iron for stone. The first one of these tools is the "flaker," a cube of steel having pointed ends, and fitted with a handle like an ordinary hammer. The

second, the "knapper," is a disk of steel two and a half inches in diameter by three-fourths of an inch in thickness, and also having a round handle inserted in its center. The third is the "chisel," also of steel, eight inches long, two inches wide and half an inch thick, and chisel edged at both ends. This was placed upright in a block of wood, and the flakes were broken on its upper edge by the knapper with his disk hammer. When the chisel's edge was dulled by use it was reversed; and when both ends were dulled they were again sharpened by grinding.

THOMAS HARPER

Bellevue, Pa.

[We acknowledge our indebtedness to Mr. Harper for the present of a fine specimen of the now antiquated and almost extinct gun flint; which was accompanied by the following note: "I send you enclosed a gun flint, one of a number—about one hundred in all—found in a cache on Bruno's Island, two miles below Pittsburg, in the Ohio river. When they were placed there, or by whom, will no doubt be never known. None of them had ever been used, as their edges were all sharp and intact. Bruno's Island is still about a mile in length; and if the amount of stone and flint relics of its early Indian occupants turned up by the plow from its surface, within the last sixty years, could be seen together, one would suppose that the entire island must have been covered with villages for a great length of time; or that the Indians living there had a monopoly of the stone implement industry." Considering that gun flints, in general use for many years, have, within half a century, totally disappeared, we can form some estimate of the vast numbers of flint arrowpoints made by the Indians, by their present abundance more than a century after their use was discarded.—Editor.]

THE ABORIGINAL WORKSHOP AT THE BASE OF MORGAN'S HILL, ON THE BANKS OF THE DELAWARE RIVER.

About four miles north of the manufactory described in No. 8 of Mr. Charles Laubach's series of papers, and about an equal distance south of the present city of Easton, is a beautiful little ravine surrounding a perennial spring which discharges about ten gallons of clear, sparkling water per minute and enclosing the remains of what was undoubtedly an extensive workshop of the primitive inhabitants who lived in this vicinity.

Here the swarthy savage, skilled in the art of making implements for domestic use and fashioning weapons of war, plied his trade, supplying his tribe with the necessary implements with which to defend itself against its enemies, and provide for the necessities of life as well as with trinkets and ornaments with which to adorn and amuse themselves.

A more beautiful and appropriate spot could not have been selected. Situated under the brow of the hill which rises directly back of it to the height of about 800 feet, protecting it alike from the burning rays of summer's sun and the chilling blasts of winter's wind, the eastern side constantly bathed by the waters of the picturesque Delaware, its scenes are varied and beautiful.

Here the brawny workman weary with his labor could find rest and enjoyment by strolling through the forest making love to his ideal maiden, by hunting the squirrel, fox or deer with which the surrounding country was well supplied, by fishing or bathing in the gentle waters of the Delaware, or by admiring, as all savages love to admire, the handiwork of mother nature.

Owing to the fact that until quite recently very little systematic study or scientific investigation had been conducted on this site, the most perfect implements have been carried off by curio seekers or destroyed by the plow, so that

when the writer began conducting personal original research, his labors were rewarded by finding the broken remnants (none the less interesting because broken), with just enough whole ones to illustrate the different kinds of implements manufactured and used by the tribe.

Arrows (triangular and stemmed), of jasper, quartz, argillite and flint, banner stones of steatite, hatchets of flint and axes made from the gravels of the glacial deposit and granite which is plentiful here, net sinkers of all varieties, hammer stones, lapstones, cupped or pitted stones, pottery of steatite and baked clay neatly and symmetrically engraved, pieces of pipes, scrapers, crescents, rubbing and skinning stones have been found in considerable quantities.

In selecting this spot for a manufactory, its situation in regard to its convenience to suitable material for manufacturing was also taken into consideration. The jasper for arrows, knives, spears and scrapers was easily transported from the jasper and chalcedony quarries at Durham, Bucks Co., Pa., the steatite for pottery, banner stones, etc., was obtained readily a few miles up the river, quartz and flint was plentiful near the village, and the glacial moraine furnished abundant material for hammers, medicine bowls, net sinkers, axes, adzes and pestles. Thus it can readily be seen that, by virtue of its physical characteristics and advantageous environments this workshop was particularly well located with regard to procuring the necessities and comforts of a well regulated Indian village.

Although, through lack of interest or by neglect, the most valuable remains of this once numerous and industrious tribe of Indians have been carried away or destroyed, thereby destroying many valuable pages in the history of these people, yet the earnest student can learn much from the broken and scattered remains. Heaps of fire broken stone (the remains of fireplaces), traced, arranged and mapped will eventually give us the exact size and shape of the village in the same manner as the chips, partly finished, and broken implements of domestic use and weapons of war led to determining the extent of the workshop described in this paper; and we have but recently discovered, through investigations and comparisons of this kind, a series of mounds which are, according to all accounts, a rarity in the Delaware valley as well as what appears to be the crematory of the tribe which will be described in a future paper.

The workmanship of these artificers does not appear to differ materially from that of the workman in the different parts of the Delaware valley, and verifies the statement that these Indians were skilled in the art of cutting, chipping, perforating, grooving and polishing stone. The descriptions given of the implements found throughout this valley seem to correspond in every respect to those found in this particular part of the valley, in fact as I intimated in a preliminary article on this village site there seems to have been direct or indirect exchange of weapons or material for manufacturing them as I have found at least one arrow of slate which must have been carried a distance of 25 miles at least and one of coal, perfect in outline, which came a much greater distance.

In concluding this article I would like to impress upon the minds of those who read this paper the necessity of gathering all the information possible from these ancient Indian village sites, as the time is not far in the distance when the last trace of them will have been destroyed by the onward march of civilization and our opportunities for conducting original research in the village of the aboriginal inhabitants of our native land will have passed away.

Raubsville, Pa.

HARRY J. IVEY.

JADE AND SIMILAR GREEN STONES.¹

By Prof. Amos P. Brown.

The name jade may be properly applied to several mineral species, all of which have a more or less greenish color, are as hard or harder than steel, and possess a compact and tough texture. The name is also sometimes improperly extended to include other greenish stones of the same general appearance, notably several varieties of serpentine. The stones now called jade were formerly grouped under the head of jasper and were included with the green jaspers. The names jade and lapis nephriticus, both of which were used to designate these stones by the older mineralogists, came into use about three hundred years ago. Agricola,² in his *De Natura Fossilium*, does not make use of either term, although he undoubtedly alludes to jade under "jasper" when he describes a variety which in color "is like to gray fat, or greenish, sprinkled with milky," or again as "like gray-green fat (*glauco pingui similis*)"; both of which descriptions almost certainly allude to Oriental jade, and particularly so as he describes the mineral as coming from "India." Conrad Gesner³ (1566) does not use the names jade or lapis nephriticus, although he probably alludes to jade under the greenish "jaspers," which he states are particularly valuable for amulets, and as cures for certain kinds of sickness.

Aldrovandus⁴ (1642) speaks of the stone under the name of "lapis nephriticus, commonly called Isiada or Osiada, from ischiada or sciatica, and therefore called by the Spanish *piedra de la yjada*." It seems probable that the name "jade" was first used for the American mineral, and that it is derived from the Spanish as above, the Spaniards being the first to bring American jade to Europe. Thus Caesius⁵ (1686) speaks of jade as "lapis nephriticus, which was brought a few years ago from New Spain, it is a greenish stone, mixed with milky," etc.

At the time of the publication of Haüy's⁶ *Mineralogy*, two species of jade were distinguished, which he calls *jade nephritique* and *jade de Saussure*. The first of these includes the present species nephrite and jadeite; the second is the so-called saussurite. Haüy expressly excludes serpentine from the jades, and this distinction seems to date from early times. Our present name nephrite was adopted by Werner in 1780, and the mineral jadeite was separated from nephrite on chemical grounds in 1863, this new name being proposed by Damour. Jade proper may be either nephrite or jadeite, but saussurite has often been called jade and is, for example, the "jade" of the Swiss lake dwellers in large part.

Nephrite is a silicate of calcium and magnesium, of the composition of the minerals called tremolite and actinolite. It is generally light colored, yellowish to grayish green, the color depending upon a small percentage of iron, which is higher in the darker varieties or those which approach the composition of actinolite. It is harder than steel and has a specific gravity of about 3. The structure of nephrite can only be made out when it is examined with a microscope. When seen in section, in polarized light, the mineral shows a felted mass of fibres, interlacing in every direction, looking much as the compact massive tremolite or asbestos appears to the naked eye.

Jadeite is a silicate of sodium and aluminium, also containing a little iron which gives it a greenish color. In hardness and structure it is, as a rule, precisely similar to nephrite, but has a somewhat higher specific gravity, being about 3.5. It may be distinguished from nephrite by chemical analysis or by its behavior toward polarized light. Of the two, nephrite is much more common and more widely distributed. Saussurite, the third mineral known as jade, is a

¹A lecture delivered in the Museum of Science and Art, University of Pennsylvania, February 9th, 1898.

²Georgius Agricola. *De Natura Fossilium*. Basel, 1546.

³Conrad Gesner. *De Omne Rerum Fossilium genere Gemmis, Lapidibus, etc.*, 1566.

⁴Ulysses Aldrovandus. *Musei metallici*. Bologna, 1642.

⁵Bernardus Caesius. *Mineralogia, Sive Naturalis Philosophiae Thesauri*, 1686.

⁶*Traité de Mineralogie par le Cen. Haüy*. Paris, 1801.

mixture, being mainly feldspar, which by alteration has become penetrated by other minerals, such as zoisite, epidote, hornblende, etc. In hardness it resembles the other jades, being harder than steel; its specific gravity is above 3. Its structure, as seen with the microscope, is very different from that of the other two, being entirely granular, and not a felted mass of crystals. The original saussurite was obtained from the vicinity of Lake Geneva by the elder De Saussure. Haüy distinguishes between the lustre of the polished *jade nephritique* and *jade de Saussure*; the former he calls greasy, the latter he states takes a perfect polish; and it is to be noted that nephrite and jadeite when polished do generally show a greasy lustre. These latter stones when of a strong green color often show irregular spots of white or a lighter green, and even the dull greenish gray specimens of nephrite and jadeite generally have a mottled appearance. Saussurite does not show this mottling as a rule. Owing to their structure, nephrite and jadeite are admirably adapted for making cutting instruments, but saussurite is more brittle, and while it would take a good edge, would readily chip.

The serpentines which could be mistaken for jade are all softer than steel, but otherwise closely resemble jade in color, lustre and texture. The microscopic structure of serpentine is very close to that of jade. The precious serpentine is generally quite soft; the harder compact varieties that resemble jade are grouped under the name of bowenite. The original bowenite came from Connecticut and was discovered in 1850 by Bowen, who described it as nephrite; but it was subsequently shown to be a variety of serpentine and was named after the discoverer. A specimen of Chinese "jade" in the University Mineralogical Museum, brought from China and presented by Mr. Benjamin Smith Lyman, proves on analysis to be bowenite. These hard serpentines were generally distinguished from jade by the earlier naturalists, at least so far as we can determine, and they should not, I think, be confounded with jade proper; for although it may have happened that primitive peoples have used either indifferently in certain cases, it is highly probable that they generally recognized a distinction. While jade implements are very plentifully found among many aborigines, worked serpentine that could be confounded with jade is rare.

As already noted, jade was brought to Europe by the Spanish conquerors of Central America and Mexico. Spain itself is set down as a source of jade, probably from its distribution thence over Europe. With the exception of the jade reported from the Jade Mountains of Alaska by Stoney & Clarke,¹ the jade-bearing rocks of America have not yet been discovered. The source from which it is usually obtained from aboriginal people (as illustrated by the specimens from Costa Rica, exhibited in the museum for example) was the rolled pebbles of the streams and gravel deposits. This source is no doubt that from which the Mexican and Alaskan jade was obtained by the natives, and the same is equally true of the jade from Eastern Siberia. Jade is found *in situ* in parts of Western Turkestan and Eastern Burma, where it is worked by building fires against the cliffs, an extremely precarious method of mining, and attended by very high mortality. Parts of Persia and other localities in Southern Asia furnish jade, and in several islands of the Pacific, notably in New Zealand, jade is obtained. In New Zealand the jade is *in situ*, occurring in the mountains of the southern island. The jade sometimes used in jewelry is generally classified as "Oriental," or Chinese jade, and "Oceanic," or New Zealand jade.

Among primitive peoples the uses of jade are various. Its peculiar toughness and hardness adapt it for use as a cutting tool, as the celt and its various modifications—the chisel, the adze, etc.; but no doubt on account of some especial virtue assigned to it, such jade implements were often ceremonial only. Serpentine was occasionally used in the same way. Jade was also commonly used for ornament, as among the New Zealanders, for example, where carved jades representing the human figure were formerly largely worn. Probably from this use for ornaments arose its employment as a material for amulets, which is

¹Clarke & Merrill. *Proc. U. S. Nat. Mus.*, 1888, Vol. XI, p. 115, *et. seq.*

quite universal over Southern Asia, and was alluded to by the early writers, who included jade under jasper. Thus we find in Gesner that amulets of green "jasper," mottled with white, were reputed to have extraordinary powers in protecting the wearer from death by poisoning, and he states that this use was universal throughout the East. Even in the time of Pliny this use seems to have been common.

The "medicinal" use of jade in Europe for the cure of sciatica and kidney troubles seems to date from about 1600, and apparently American jade was regarded as most efficacious. Indeed, we find it stated that this use of the stone was taught to the Spanish by the Indians of Central America and Mexico, and was communicated by the Spanish to the rest of Europe. Amulets of "green jasper," probably jade in part, had been in use in early times for the cure of sickness, and are recommended by Galen for indigestion and other stomach troubles. As a "medicine" the jades were cut into various shapes, especially long pendants, "beaks of birds," and were worn suspended by a ribbon about the neck. They seem to have been in common use in Europe and this country less than a century ago.

The working of jade into the forms in which we find it, probably presented considerable difficulty to aboriginal people, owing to its hardness and toughness. It would appear that it had to be worn into shape by rubbing rather than by pecking. The means employed by the New Zealanders are represented by the specimens of jade-working tools in the Museum. These comprise sandstone blocks to be held between the feet, on which the rough shaping is effected by rubbing the object on the sandstone; and various softer and finer stones for shaping the designs and polishing. The cutting, as practiced by the Costa Rica natives, was probably effected in the same way, no evidence of pecking appearing on the specimens, while rubbing and grinding marks are plentiful. The well-known Chinese jade carvings show the material cut into elaborate and intricate designs only equaled by the ivory carving of the same people. These Chinese jade carvings are highly prized. Excellent examples of them are to be seen in the Somerville collection of engraved gems in the museum.

Jade being such a valuable material, was naturally imitated. The Chinese have numerous glass imitations, and their gray celadon bowls were doubtless intended as copies of jade vessels. The use of serpentine for ceremonial implements may perhaps be considered as an imitation of jade implements.

The Costa Rica collection now displayed in the museum is probably the best assemblage of worked jade ever brought together. It consists (as pointed out by Mr. Cushing) of various modifications of the axe or celt, this being shown entire or more often halved by being cut in two down the centre, or even quartered by again dividing the half along its length by a second cut at right angles to the first. This cutting has evidently been done by a cord, probably in a bow, with some quartz sand as the cutting agent. Each of these halved axes shows a central line of fracture running the length of the blade, showing that it was sawed from opposite sides nearly to the middle and then broken. This side of the halved axe is not polished and the central broken section seems to have been purposely retained. A pebble in the collection which has two partly-worked cuts indicates the source from which the material was obtained, as well as the method of working it. Some of the forms in this collection represent the double-bladed axe, and many are carved and ornamented by representations of the human figure. Most of them are perforated by one or two holes, for suspension about the neck probably. Other materials besides jade are represented, as a light greenish anorthosite, which has much the physical character of saussurite. Among these jades the colors range from light greenish to darker green or bluish green, mottled with white, or clear green; the darker shades run into grays and almost to black. While analysis of Mexican and Central American jades show both nephrite and jadeite, the specimens in this collection which were examined were found to be jadeite.

PREHISTORIC REMAINS OF THE TUNNIX VALLEY. (Second Part)

BY FREDERICK H. WILLIAMS, M. D.

THE SPEAR OR LANCE.

The spear was made both for war and chase, and used also for fishing. The long slender points are commonly called fish spears, but the writer has not found them as often on the banks of brooks as on the uplands. Spears represent some of our most beautiful objects of the Indian's handicraft. We believe that many were used for diverse purposes of which we know little. The spear is usually tanged for hafting similarly to the hunting arrow and was probably attached in the same manner. In fig. 62 we present a marvelous implement of black chert from Southlington, fourteen inches long, and a small part, probably two inches, has been broken off and lost from one end. This tool has that peculiar elongated diamond shape which may be noticed in some large obsidian implements from Mexico, called sacrificial knives. Some twelve years ago we saw two similar implements in white chert at Palatka, Fla. which were unfortunately lost in the great fire a few years later. The occurrence of such aberrant types of implements in such diverse regions opens many conjectures. We illustrate nine typical spears. Fig. 63 is an immense leaf-shaped blade of yellow slate from Plainville. This is our rarest form. It is probable that some of the leaf-shaped implements were intended to be finished in this shape. Figs. 64 and 65, beautiful black chert, Bristol. Fig. 66, fine arrow-shaped spear, Farmington. Fig. 67, red jasper, Plainville. Fig. 68, magnificent white spear, almost like noraculite, from Granby. Fig. 69, red sandstone, Bristol. Fig. 70, large awl-shaped spear, from Bristol.

We know nothing how the shafts of these spears were made, and possessing neither spear nor arrow shafts or bows from this region, shall not attempt to discuss their forms. Those interested in the subject of Indian bows should read the splendid monographs of Prof. Mason.*

KNIVES AND DAGGERS.

The earlier explorers of America, especially those who touched along the coast of Florida, described the Indians as using knives of shells, with which they cruelly cut and mangled their victims. It is probable that similar implements were used by all Indians dwelling near the seas, but none have come



KNIVES AND DAGGERS

* "North American Bows and Arrows," by Otis T. Mason, Smithsonian Report, 1893, p. 631, et seq.

down to us from this section. We also believe that very many of the sharp points which we class as arrow heads, were inserted into split wooden handles, securely fastened with fibres, glue or pitch, and used as knives.

It is also more than probable that some of our long slender spears were used with very short handles as daggers. In fig. 71 is given an ideal restoration of a fine red jasper knife from Farmington, which would serve equally for a scalping knife or a dagger. In figs. 72, 73, 74, we show three typical forms. Fig. 75 is a curious implement which both curves on the edge and bends sideways upon itself.

In fig. 80, from Granby, is a magnificent specimen of the leaf-shaped implement which represents the highest perfection of the art of stone chipping. Made of a fine yellow chert, it is absolutely perfect in all directions. Near the edge of the broad end is a crystal that sparkles like a nest of diamonds. This tool was dug up from apparently undisturbed gravel in digging a well six feet below the surface. It is believed that many of these leaf-shaped tools were wrapped in pieces of fur or rawhide for handles and used as daggers. Fig. 81 is a beautiful chert dagger from Bristol.

We have shown what vestiges of the prehistoric man have come down to us. There yet remain many articles which undoubtedly are Indian—notably a fine canoe found in Plainville, and now in the Bristol Historical rooms. There is also a large stone mortar which tradition associates with an old Indian who gave his name to Chippen's Hill in Bristol, and the traditionally historic cave dwelling of one Compounce, whose name lingers in the beautiful glacial lakelet that he owned. But the writer intended only a description of prehistoric remains. There are many graves in Farmington of unknown age. On the highway from Bristol to Burlington, in the edge of Edgewood, there is a hill of glacial debris that rests upon stratified gravel. On this hillside have been seen low mounds which were undoubtedly artificial, and which had not been constructed since the white man settled in Bristol. Of this, the owner of the adjoining land, Mr. Jerome, is sure. Some years ago, Mr. William Richards and the writer met Mr. Jerome and dug into one of these mounds. Digging down about two feet through the soil that showed plainly marks of previous disturbance, we came to a level floor made of round cobble stones, perhaps three feet long by two in width. When these stones were removed, we found yet another layer beneath, which showed plain evidence of a severe heating. Between the two layers of stone was an inch or more of charcoal. The lower floor rested upon undisturbed and stratified gravel. No tool of any kind was found. A specimen of the charcoal was sent to Washington, but the Government microscopist found no evidence of animal matter in it. The nature of the pits or altars, or whatever they may have been, remains a mystery.

The preparation of these papers has been a labor of love to the writer, in hoping to help rescue from oblivion some few remaining vestiges of those who once roamed these valleys in their pristine beauty; if he thus helps to hinder their further dispersion, he has his full reward.

We, in all the pride of our higher civilization, owe it to the memory of these races, whose very savageism kept the hills and dales of America a rich and virgin soil that we might wax strong upon them. They gave untold centuries to the development of the maize from a wild grass of Florida, those golden grains that are richer to us than all the golden cliffs of the Rockies. Let us then garner into museums those vestiges that yet remain. Time, ever envious of the sole prerogative of immortality, seeks their sure effacement. The earth and air wage unrelenting warfare for the destruction of these unprotesting witnesses of a vanished people. In their history as left us in these stones, silent no longer to those who interrogate them aright we may read the story of our own ancestral struggle in the long, dark, awful night which left no verbal record. The winged spirit of thought goes backward into those prehistoric, abysmal depths, and shows us the sure origin, both of what remains to us of savage instincts and that tenacious, ever upward, aspiring spirit which through invention seeks the mastery of nature.

NOTES ON DELAWARE INDIAN VILLAGE SITES.

The Durham Meadows—Along Fry's Run.

No. 11.

About one mile south by west from where the Brandywine empties into Durham Creek are the historic Durham Meadows.¹ Here the agents of Wm. Penn, the proprietor of Pennsylvania, and the Delaware Indians, including the "Six Nations," often met in council to perfect their treaties in regard to sale and purchase of lands from the Indians residing along the Delaware river and its tributaries. Durham was early celebrated as a place for holding Indian treaties, owing to the fact that a great and powerful tribe of Indians had established themselves at this place and along the adjacent water courses. While it is true that the Indians were paid for their land lying south of the Lehigh river they were in a manner forcibly dispossessed of their lands in the Forks² of the Delaware and northward.

On August 25th, 1737, Tesakomen alias Tishekunk, and Nootamis alias Nutinus, two of the more prominent Delaware chiefs, who had three years prior at Durham begun a treaty with John and Thomas Penn, agents for Wm. Penn, met to rectify the purchases heretofore made, by having the purchase walked, traveled or gone over by persons appointed for the purpose. This was agreed to by the Penns and the walk took place; but proved very unsatisfactory to the Indians. They complained that the walk was a fraud. "No shoot a squirrel, but lun, lun, lun, all day long." Nutinus and the others who had signed the release of land, and agreed to the walk, were now neither willing to accept the result of the walk, nor allow white settlers to occupy any portion thereof, even declaring their intention to maintain possession by force of arms if need be. This continued until 1741, when a message was sent by the Penns to the "Six Nations," who, at the time held the Delaware under a sort of bondage or vassalage, to come and force the Delawares to quit this section of country. They met in Philadelphia in the summer of 1742 and decided to remove the Delawares from the west side of the Delaware river into New Jersey, where they came from. Some of the Indians moved to New Jersey, others to the Wyoming valley and Shamokin, and a few to Ohio. Thus this section of country was gradually rid of the Delawares, who had some ten or twelve years earlier driven out the Shawnees.

As these meadows where the Indian treaties were held, and the council fires burnt for many moons, were located near the site of one of the earliest iron works in the State of Pennsylvania, and owing to the constant traffic and turmoil incident to the carrying on of such an enterprise, the writer succeeded in obtaining only a few implements of Indian art from this historic spot. The specimens consist of several finely finished grooved axes, arrows and spearheads of jasper, red ocher, and pink feldspar. The latter were no doubt brought hither by the Indians for curiosity, as no pink feldspar or red ocher is in the vicinity. A few hundred yards west of this place was until a few years ago a large and finely chipped stationary corn-mill, or mortar chipped in a solid block of limestone. The cavity was eight inches in depth and the same in diameter and well worn. It

¹The "Durham Meadows" are low-grounds extending along Durham Creek, from near its confluence with the Delaware river to Springtown, Bucks Co., Pa., a distance of five miles. The large Indian path from the Delaware river near Burlington and Newtown, to the great hunting grounds at the Susquehanna near Wyoming, and the Minisink country, passing through these "meadows". The main trail was intersected by numerous minor paths leading in through the adjacent forests, which were thickly settled by the Indians, especially along the small streams which emptied into Durham Creek.

²For a full account of the "Great Walk" see Hazzard's Register, Day's Historical Recollections of Pennsylvania. The Indian Walk, by Wm. J. Buck, etc.

was finely located in the sunny-side of Fry's Run and about five hundred yards north of Durham Creek. The writer at various times examined the mill with the hope of some time removing it to a more appropriate place; but the block of limestone being too bulky for removal without reducing it in size, the matter was deferred. In the meantime some vandals in the hope of reducing it to a portable size without destroying it, and claiming to be experts in archaeological lines commenced work on its removal. The result was, they secured the upper or pot-portion, while the bottom part remains in the block of limestone to this day. So much for so-called experts. What they cannot secure they destroy. Following Fry's Run a distance of about half a mile is met a large and extensive ancient Delaware Indian village site and implement manufactory. The village, judging from the area strewn over with stone art implements manufactured by peoples during the successive centuries of the age of stone, covers about twenty acres, and consists of every conceivable implement needed by primitive man as he slowly evolved from a rude to a more polished status. This site being sheltered by gently sloping hills on all sides, but towards the south, and having an abundance of good water, and a stream which yielded an abundance of fish, while the woods were full of game, must have been a grand dwelling place for primitive man, so closely allied to nature in his habits.

On the western borders of the camp site still exists a rock shelter wherein in "days of yore" dwelt in pristine glory some of these dusky savages. Near a large spring of excellent water on this site was a large depression, which tradition says was made by the Delaware Indians. The depression created by the removal of the soil to a depth of about eight feet and twenty in diameter has been gradually filled by carting the loose stones into it picked off the contiguous fields. The same tradition current in the vicinity some forty years ago tells us that numerous stone implements were buried here by the Indians on their enforced removal by the Six Nations in 1742-5. No one, however, has as yet undertaken the herculean job of removing the huge pile of stones presumably covering the art implements. This, with the knowledge that the Indians may have returned and secured the implements unknown to the whites, deterred relic hunters from undertaking the removal of the debris covering the implements.

Of the numerous stone implements here found the writer will describe a few of each, with the view of exemplifying the various forms of implements conceived and fashioned by prehistoric man while a dweller on this large and important village and implement manufactory.

1st. A mottled play-ball six inches in diameter, composition Potsdam sandstone, color greyish-white, perfect.

2nd. An anvil stone, nine inches at the base, by eight high, composition amygdaloid of trappean origin. It must have been brought here by the Indians from a distance as the mineral is not native to the locality.

3rd. Circular stone five inches in diameter, by one and a half in thickness, chipped around the edges and perfect. Composition Potsdam sandstone. Used no doubt as a game stone. Numerous stones of this class much battered and broken may be found here.

Hammer stones of every description have been picked up here, from three-fourths of an inch in diameter to six inches. Composition Potsdam sandstone, residual gravels, post glacial and premoraine boulders.

Celts of granite, finely polished edge; others of a dark variety of slate polished all over, others broken and very rude.

Nut or pitted stones of every conceivable shape and size, composition same as the hammer stones, and very abundant.

Ceremonial Objects—Butterfly shape, dark slate, perforated; others of steatite, some perforated, and others partly finished. Several very rude—discoidal or game stones in great variety.

Arrow and spear heads of all sizes usually found in Delaware village sites. Composition white quartz, jasper, chert, chalcedony, argillite, pink chalcedony, etc., some square based, others notched, serrated, beveled, etc. Drills of jasper mainly, fine and of perfect finish.

Axes numerous, manufactured of diorite, granite, argillite, etc. Some finely chipped and polished, others rude and battered. No pipes were discovered here to our knowledge.

About five hundred yards due north from this site are the remnants of a sub-camp or picket station. Here the refuse covers about two acres. In the centre of this camp a large granite boulder served as an anvil for the manufacture of arrows and spear points, as is evidenced by the heap of refuse lying around. This camp or picket station was nicely located in a sunny knoll close to several large springs of good water, and overlooking a large scope of country to the southward. The hammer stones are all of premoraine boulders carried from the low grounds along Durham Creek, and are all from three to six inches in length, and from an inch to three inches in thickness, well battered and many broken. The arrows are chiefly quartzite, some of argillite and others of Durham and Lehigh jasper. They are stemmed, barbed and triangular in nearly equal proportions. The camp must have been occupied during many centuries.

The cornfield and training grounds, lying a few hundred yards northwest from the springs, was finely located. It remained surrounded by dense timber until about 1830, when the field was enlarged by the owner of the land who cut the timber on its northern borders and farmed it in connection with the enlarged area. Although the field or area including the Indian field has been farmed over sixty years, the original portion of it can yet be easily traced, owing to its being entirely destitute of rocks and stones, which abound on other portions of the enlarged area. The writer recently paid a visit to the locality and found the original area cleared by primitive man to have been about seven acres.

Riegelsville, Pa.

CHARLES LAUBACH.

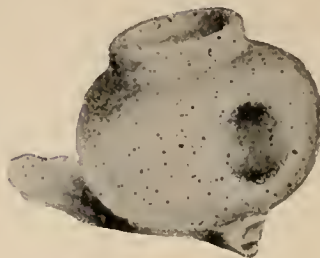
CORRESPONDENCE.

Editor *Archaeologist*:

I think I can shed a little light on the "sweat and dance house" mentioned in September issue by your fair correspondent, Mrs. Ellen C. Webber, of Vancouver, B. C. Yolo county, California, is the next county south of Butte; and the Indians inhabiting the two counties are very nearly the same. A friend of mine, living in Nevada county, visited in 1854, a friend in Yolo county and on her return told me of one of those "sweat houses," located near her friend's ranch, either on Putah or Cache Creek, I can't remember which. It was used for hygienic purposes, and was located convenient to a deep hole of water in the creek. Smallpox was raging among the rancheries in the vicinity; and the Indians, after producing profuse perspiration in the sweat house came out, threw off their wraps and plunged into the cold water; which treatment, in each instance, proved fatal. I did not witness this; but have as much faith in the accuracy of the statement as if I had seen it in person. Those Valley Indians seemed to be a shade higher in the scale of humanity than those I knew most about in Nevada, Placer, Eldorado and other foot hill counties, who, so far as I observed, employed few remedial agencies, if any.

Mt. Pleasant, Iowa.

FRANCIS C. PORTER.

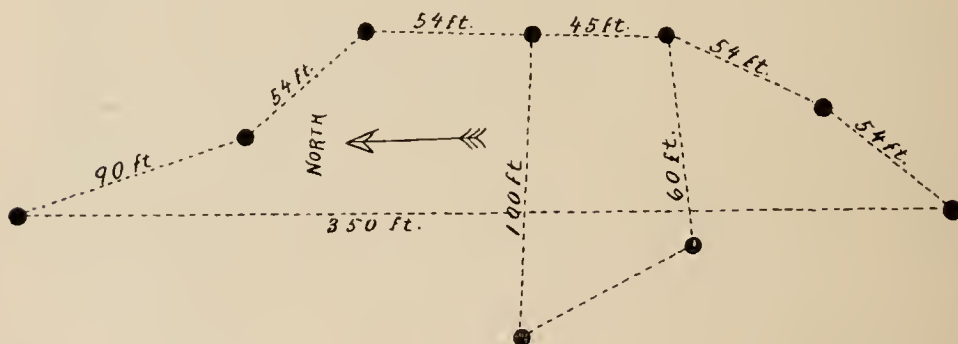


Editor Archaeologist:

The pipe, a drawing of which I send with this, I found on the bank of Rock river, about eight miles south of Rockford, Illinois. It was washed out by the recent heavy rains, and is, I think, quite a rare relic. But few pipes have been found in this region, so far as I know, and none of the peculiar form of this one; which is seldom seen in any collection. It is one inch and three-eighths in height by one and a fourth in diameter; and has been carved from a hard, gray stone. It is perfectly true in proportions, well finished and finely polished. The projection at the base is broken off where a hole was drilled through it, probably to retain a cord that tied the bowl to the stem. With this pipe I found two fine spear heads of flint, one of which was two and three-quarters inches in length and the other five inches long.

Kishwaukee, Ills.

GEORGE STEVENS.



Editor Archaeologist:

On an elevated plateau or tableland, the only elevation for miles around, and covered with a growth of oak and pine trees, very near the residence of Mr. William Hosey, on the Heidelberg and Lake Como road, about six miles somewhat south by east from the last named little town in Jasper county, Mississippi, is situated a group of mounds nine in number, as shown in annexed diagram. The figures on it designate the distance the elevations are apart in feet.

Only a few of the mounds have ever been examined. One of these, when opened, contained three skeletons having skulls placed together in the centre, and the bodies pointing toward the margin, forming equal angles with each other. In all there was found charcoal with the bones, and the bones showed evidence of having been burned. Some of the mounds are three feet high, but most of them are right in the vicinity of Mr. Hosey's house, and stock has worn them down. The most northern mound, and the two small ones in the west are in Mr. Hosey's yard. The others are in a forest. In those examined the bones in every instance have been found near the top. The larger mounds are about thirty feet in diameter. When Mr. Hosey's grandfather found these elevations sixty-five years ago, the Indians were ignorant of their origin, or at least pretended to be.

There is every indication that these remains are all burial mounds, and no doubt a careful examination of them would disclose much to interest the archaeologist. Situated as they are, it is evident that their builders had an eye for the picturesque.

Crawford, Miss.

H. S. HALBERT.

To The Archaeologist:

I have read in the old *Archaeologist*, in *The Antiquarian* and in *The American Archaeologist*, many interesting accounts of shellheaps in widely different localities in the United States; nearly all of which were situated on, or not far from, the sea coast. There were, in early days, four or five small shellheaps on the banks of Flint river here, in or near Richfield, Genesee county, Michigan, of which the largest—as I was informed by Mr. Cown, the owner of the land, and also by the man who cleared it—contained about five or six bushels of shells, of which a few are in my collection now deposited in the United States National Museum.

I send this fact to you now, because if I did not communicate it to you—or to some other scientific publication—it would be forever neglected.

Richfield, Michigan.

BYRON E. DODGE.

[Accumulations of fresh water shells, marking old Indian camping places, on or near the banks of some of the streams tributary to the Mississippi river, are occasionally discovered; but they are seldom of much magnitude, for the reason that none of the prehistoric Indians of the basin drained by the Mississippi seem to have existed exclusively, or largely so, on river mussels, as some of the Florida Indians did. In this central region they appear to have resorted to mussels for subsistence only in exceptional localities; and very probably in those districts only at times when, from extraordinary causes, there occurred great scarcity of all other food.—Editor.]

EDITOR'S DEPARTMENT.

DR. J. F. SNYDER, EDITOR, - - - - - Virginia, Ills.
 PROF. A. F. BERLIN, ASSOCIATE, - - - - - Allentown, Pa.

All communications for the Editor must be addressed to Dr. J. F. Snyder, Virginia, Cass Co., Ills.

Under the head of "Fraudulent Spear or Arrowheads of Curious Forms," Prof. Thomas Wilson, of the Smithsonian Institution, published—more than ten years ago, in June, 1888—in the Anthropological department of the *American Naturalist* (of which he then was, and still is, the editor) the following note, with illustrations we now, by his permission, reproduce:

"We have just received a series (eight in number) of these curious-shaped spear or arrowheads which were transmitted to us for our inspection. We were not informed whence or from whom they were purchased, nor who was suspected in connection therewith. But a slight examination developed the fact that they were spurious. The material used was black and jaspery flint or chert which takes no patina with age or exposure. The fresh fractures have much the same appearance as have the ancient ones. A critical examination, however, under the microscope and in other ways known to archaeologists accustomed thereto, detected the fresh chipping done at the places necessary to make the curious form. We were thus enabled to supply the outline where it had been chipped away, and could see the genuine implement as it was before subjected to the dexterous manipulation, or sleight of hand, of this modern manufacturer of spurious flints. Five of the specimens had been made from the common leaf-shaped spear or arrowhead. In two cases stemmed arrowheads were used, and the last was triangular with a concave base. From these original and genuine forms the manipulator had made his curious forms. The originals were worth, say, two cents apiece, but after being subjected to his adroitness, their price would be increased to fifty or seventy-five cents. A fine speculation! A law is sorely needed in the United States by which these fine gentlemen can be prosecuted for such deceitful practices, as they now can be for passing base money."



The industry of imitating the ancient stone implements of our prehistoric Indians was, at the time Prof. Wilson wrote the above, in its infancy. A few illiterate backwoodsmen who were (and are yet) too indolent to earn their living by honest labor, and not bold enough to steal, discovering the growing demand for relics of the former aborigines, and the fact that such relics had a commercial value, commenced the trade of counterfeiting them. They have been engaged in this nefari-

ous occupation ever since, gaining accessions of other swindlers to their ranks, and with the experience of years in unmolested prosecution of their disreputable work, have attained surprising skill and proficiency in chipping flint and modeling stone into pipes and other objects. The latest development in the evolution of abnormal forms of spurious flint relics, of the order of those represented in Prof. Wilson's figures, is found in the now notorious Robinett "sickles" and "ceremonial crooks." These frauds display also the highest perfection reached by the counterfeiters in their renaissance of the lost Indian art of flint chipping; many of them excelling the finest work of Indians in that line.

In this connection we venture to append the following extract from a private letter—not intended for publication—we recently received from Prof. Wilson, as testifying his unabated interest in the cause for which *The Archaeologist* has for some time, single-handed and alone, been battling:

"I have read your September number and highly appreciate your crusade against the counterfeiters of Indian relics. I don't know if I can aid you to my full desire; but my heart and good-will are with you. I must again remind you of my former suggestion that you prepare the draft of a bill, providing penalties for such counterfeiters, in time to be introduced at the beginning of the next session of Congress. There is such a law in France; and a case under it came within my observation, while I was there, in which a man who was convicted for its infraction was fined fifteen hundred francs. If we succeed in having such a law enacted here by Congress, the Legislatures of the several states will soon adopt similar laws; for it is certain that everybody would approve of such legislation excepting those engaged in the illicit business. No one would dare oppose it."

The bill referred to is now being carefully written under the immediate supervision of an able and experienced congressman, and will be presented in both houses of our national legislature simultaneously. Every reader of this magazine who desires the enactment of such a law can materially assist in the passage of the bill by writing a personal letter to the representative of his district in Congress, urging him to support the measure.

BOOK REVIEWS.

Prehistoric Art; or Origin of Art as Manifested in the Works of Prehistoric Man.

By Thomas Wilson, Curator of the Division of Prehistoric Anthropology in the U. S. National Museum. From Report of the National Museum for 1896.

We have been favored with an opportunity to look over the advance sheets of this paper, forming part of the forthcoming Museum Report, not yet published, and can pronounce a very positive opinion of its literary and scientific excellence. As are all of Prof. Wilson's contributions to science, this one is carefully written, well arranged, fully illustrated and a well-stored repository of all important known facts in this field of study. After defining the meaning of Art, he commences with a review of its first rude and simple dawning in Europe as manifested in the crude devices of Palaeolithic cave dwellers, and traces its gradual development there through their cave and reindeer periods of rough stone-age existence; through their Neolithic, or higher culture, marked by polished stone implements, into that still higher evolution attained by a knowledge of metals and display of aesthetic motives in fine bronze designs, before the beginning of written history. Art in America, as manifested in the works of our prehistoric Indians, seems to have

commenced at an advanced stage—as it were—in finely finished and polished objects in stone—Neolithic from its inception. The Palaeolithic Man of Europe has no parallel here; or, if his “period” on this continent was contemporaneous with that in France, its traces here have become so nebulous and indistinct as to defy satisfactory demonstration. The Neolithic American is without pedigree, and can boast of no indigenous ancestry that, far back in the dim morning of time, before these hills and plains were enshrouded in ice, succeeded in mastering the primeval reindeer, and coped in fierce conflict with the famed cave bear and the hairy mammoth.* From the remains left us by the earliest known natives we must conclude that when they first landed upon our shores—or otherwise came into existence here—they were already adepts in the stone chipping art and had the fine taste to grind and polish their implements and ornaments fashioned out of hard granitic rocks. These facts are adroitly utilized by the author to substantiate his theory of art transmission among primitive peoples, and, incidentally, as proof of the exotic origin of our Indians.

Prof. Wilson’s familiarity with the surprising discoveries of art remains made several years ago in the caves and glacial drift, in the valley of the Somme, at Langerie Haute, Cro-Magnon, Le Moustier, St. Acheul and other points in France, gained during his long residence in Europe, and by extensive personal observations and study, has well fitted him for the discussion of prehistoric art progress, and gives his present treatment of that subject an increased value. We will, in a future number, endeavor to reproduce some passages of this work, or review it more at length; but our restricted space permits us to add, at present, to this brief notice only the assurance of our appreciation of its high merit.

Ruins of Xkichmook, Yucatan. By Edward H. Thompson. Chicago, 1898.

The ruins of this temple city, in the forests of Yucatan, situated 140 miles south of Merida, the capital of that state, and 40 or 50 miles east of its western boundary line, were unknown beyond their immediate vicinity until discovered, in 1886, by Mr. Thompson. In 1891 he revisited that locality and commenced investigating the long-deserted stately structures of stone and the shapeless mass of ruins into which time had converted several of them. His examinations continued, at certain seasons, for seven years, when he placed the results of his labors at the disposal of the Field Columbian Museum, of Chicago; and they are now published, with above title, by that institution as Part Third of the Second Volume of its Anthropological Series.

This group of ruined edifices, named by the natives Xkichmook, signifying in the Maya language “the buried beauty,” was not so extensive as that at Uxmal or Palenque; but the identity of architecture and ornamentation indicate the builders of all to have been the same people, and in origin are probably not far separated in chronological order. In general plan Xkichmook corresponded closely with the other so-called “cities,” or seats of priestly authority, of the Mayas; having a principal building, or “palace,” with several others of lesser pretensions irregularly disposed about it, all constructed of dressed stone on high, stone-faced, artificial terraces, flanked by high mounds, and having, convenient to the buildings, a number of curiously formed and well cemented underground cisterns for collecting and retaining supplies of water. In his excavations beneath the stucco floors of the tumbled-down rooms, Mr. Thompson found the remains of many human skeletons, with pottery vases, stone implements, etc.

*Excepting, perhaps, in limited localities not far from Davenport, Iowa, and some four and a half miles east of Doylestown, Pa.

This report is finely illustrated with several full-page views of the buildings, large detailed ground plans of the whole ruins, and an accurately drawn plan of each of the several surrounding structures, with representations of mural paintings, and of the various objects of stone and pottery recovered during Mr. Thompson's explorations. The work before us is that of an intelligent and enthusiastic archaeologist, and adds to science a valuable contribution to the knowledge heretofore gained of the strange culture developed in that region by the Maya Indians.

The Mapa de Cuauhtlantzinco or Codice Campos. By Frederick Starr. The University of Chicago Press. 1898.

Notched Bones from Mexico. A Shell Inscription from Tula, Mexico. By Frederick Starr. (Reprinted from Vol. VII, Proceedings of the Davenport Academy of Sciences.) Davenport, Iowa. 1898.

In these two pamphlets Prof. Starr has given to the public some of the results of his late researches in the antiquities of Mexico. The Codice Campos is the description of a series of forty-four paintings on European paper, by a native artist, executed early in the Sixteenth Century, and intended to portray scenes, as well as the condition of the subjugated natives shortly after the conquest. Each painting is twelve by sixteen inches in size, and they have been well preserved by the native Aztecs and their descendants, for three and a half centuries, at the Pueblo of San Juan de Cuauhtlantzinco, in the State of Puebla. Though the faithful native guardians of the antique art treasures reluctantly permitted Bandelier to barely glance at them in 1881, they allowed Prof. Starr, in 1895, not only to examine them critically, but to photograph them and to copy their explanatory inscriptions, all of which he has reproduced in this monograph. The pictures, considering the artists and the age, are remarkably well made, but require astute interpretation to serve for connected historical records.

The second pamphlet, an anthropological contribution by Prof. Starr to the Davenport Academy of Sciences, comprises, first, the description of twenty-one human bones—14 femora, 2 humeri and 5 tibiae—with notches cut into them transversely at regular intervals, that were found, with several buried skeletons of ancient natives, not far from the City of Toluca, in the State of Mexico. Prof. Starr thinks these grewsome objects were musical instruments, the "music" having been produced by rubbing some resonant substance up and down over the notches. In support of this opinion he figures, with four of the creased bones, a similarly notched stick in use now by the Tonkaway women "to give time in certain dances."

Secondly: "Perhaps the most interesting piece of carved shell so far found in Mexico" is figured and described by him, being a part of a *haliotis*, or "ear shell," from the Pacific coast, found at Tula, a town fifty miles north of the City of Mexico. On its inner, or concave, side is an elaborately and exceedingly well carved figure seated with legs crossed, which, in features, dress, ornaments and gorgeous head-dress, resembles the human figures seen on the Mexican shell gorgets and on the monoliths of Central America. On the obverse or concave side is a row, extending across it, of hieroglyphics seemingly of the same type as those found at Palenque and Copan and attributed to the Mayas. If they should prove to be identical with those, the problem then to be solved will be whether these calculiform characters originated in Central Mexico and, with migrating tribes, drifted south; or, if such specimens as this shell fragment were intrusive and brought to the Nahuatl by barter, or military reprisal, from the Mayas of Yucatan.

NOTES.

The ruins of a prehistoric town in Boni Canon, near Raton Springs, is being closely examined by Prof. George H. Feffer, of the American Museum, New York, and Prof. Swinton, of the Peabody Museum, Cambridge, Mass. Important archaeological discoveries are expected.

Mr. David Boyle, curator of the Ontario Archaeological Museum, is in receipt of an exceedingly curious survival from prehistoric times in the shape of a good-sized lump of "bog butter." In Ireland in the very old times the art of making butter was known, but the preservative effects of salt were as yet undiscovered. Nevertheless, the people of that age possessed some means of preserving it, burial in a bog being part of the process. Firkins of it were frequently left there for safekeeping, and from time to time these relics of prehistoric housekeeping are unearthed. Mr. B. St. George Lefroy, of Toronto, who is now in Ireland, is the donor of a good-sized piece of cheesy-looking stuff to the museum. Mr. Lefroy's letter to Mr. Boyle is in part as follows:

"I have just sent off per parcels post a piece of 'bog butter' to you. I don't know whether it is a thing of sufficient antiquity and rarity to be of any value or interest to you, but as the Dublin Museum has a keg in a prominent position, perhaps you may consider it worthy of admission to a place in the museum. I notice the Canadian customs forbid 'substitutes or imitations of butter.' I hope red tape won't signalize itself over this.

"The keg of which this is a portion was dug up recently (this year), in a bog near Dunlavin, county Kildare. The staves are said to have been round it, but to have fallen off on removal. It lay in a peasant's garden, and the dogs fed on it for a time. Mrs. Hopkins, of Blackhall Castle, Kileullen, county Kildare, got it then, and I got this fragment from her. I melted a piece and it seems decidedly butterish."

A corner of the Metropolitan Museum of Art, New York City, which always attracts the attention not only of the antiquarian and archaeologist, but of the most casual and unlearned visitor, is the room which contains the famous Petich collection of Mexican antiquities. This collection, gathered at great expense by Chevalier Louis Petich, formerly Minister of the Italian government to Peru and later to Mexico, was loaned by him to the Metropolitan Museum, where it has remained for the last three years. The Petich collection consists of 1614 pieces representing the most advanced period of the Toltec, Aztec and other Mexican civilizations, many of them exceedingly rare and valuable. Both in number and in value the collection is second only to the Mexican exhibit in the Museum of the City of Mexico, so distinguished an antiquarian as Dr. Francis Parry having valued it at from \$25,000 to \$40,000.

It is complete and replete in large and small idols, busts, heads, faces, masks, ornaments, implements of war, work and sacrifices; toys, molds, stamps, animals, birds, reptiles, instruments and like objects.

There are several rare and exquisite examples of Toltec modeling, a vast array of Aztec cast terra cottas and sculptured stone, rich even in its hideous grotesqueness, and varied enough to gratify the most exacting student of archaeology. The Toltec terra cottas, comprising in one group ten heads, three-quarters life size, will excite interest, as much on account of the art evidenced in their construction and conception as for their surprising suggestions of Asiatic character in expression of facial lines and ornament. These objects alone would be worthy of the best scholarly treatment; they are easily equal to the Greek product in exterior line and plane, and stand among the most remarkable specimens of antique sculpture extant. It is fair to presume that these objects were produced at least three centuries (about the year 1000 A. D.) after the Toltecs had settled among the Cordilleras, and that they were the works of the Tollan denizens, in their first city, and founded by them in memory of their native country in the Kingdom of Tollan.

While excavating a gravel bank near the city of Chillicothe, Ohio, workmen came upon what were apparently the bones of a prehistoric man. The skeleton was found in a sitting position, with the knees drawn up under the chin. The thigh bones were nineteen inches long, and the skull three-fourths of an inch thick. In it were a number of teeth worn down to the jaw, indicating the man was very old. The bones were found on a number of rocks laid like paving stones.

Leopold Batres, a Mexican conservator of antiquities, has just made an important discovery. In a cluster of hills a little distance west of Tlalnepan-tla, near the village of San Bartolomito, he has found a pyramid sixty metres high and one hundred and fifty metres at the base, in a splendid state of preservation, and near by stones of volcanic origin covered with inscriptions which promise to throw much light upon the prehistoric times of Mexico. Mr. Batres proposes to make a careful study of this latest archaeological find, which may prove of the very greatest importance. The stones bearing inscriptions will be removed in order to make it possible to decipher the writing, which appears to be contemporary with that on the calendar stone.

The recent gift to the Peabody Museum of American Archaeology and Ethnology, Cambridge, Mass., of the famous "Calaveras skull" reawakens interest in that remarkable relic of antique man. The skull was found in 1866 imbedded in gold-bearing gravel in Calaveras county, California, at a depth of 127 feet. Above it were four beds of lava that had flowed from a now extinct volcanic vent. The late Prof. J. D. Whitney (whose sister, Miss Maria Whitney, made the gift to the museum), was convinced of the genuineness of the discovery. The owner of the skull is supposed to have lived in the pliocene epoch, a period so remote that the ancient dates of history seem quite recent in comparison.

The schooner yacht Rambler, with a party of scientists from the Smithsonian Institution, Washington, D. C., are now on San Clemente Island, on the coast of California. In quest of archaeological remains. This island has been known for a long time to have contained the chief city of a prehistoric race which inhabited all of the Santa Barbara Channel Islands. Domestic utensils and implements of war have been recovered in large quantities and scientists have predicted that some time the ruins of an ancient Aztec city will be discovered on this island. It is the purpose of this expedition to make a thorough and systematic search of the island for the ruins of an ancient people and also to study it from a geological standpoint.

The expedition is in charge of Prof. Anderson, of the above institution.

Says the Wahsington, D. C., Star: Probably the oldest letter in the world is the letter of Panbesa, written fifteen centuries before Christ to his friend Amenemapt, a scribe.

The manuscript is of perishable papyrus, and it is amazing that it should have survived for more than thirty centuries and still be legible.

It is preserved in the collection of the British Museum. It has been several times translated during the present century. It presents an interesting picture of life in Egypt in the time of Rameses II. It is more in the nature of a literary production, a poem composed in celebration of the visit of Pharach to the city of Pa-Rameses, than an ordinary letter of today.

Panbesa, "greet's his lord, the scribe Amenemapt, to whom be life, health and strength," and then goes on to describe the verdant fields, the threshing floors, the vineyards, the groves of olives, the orchards of figs, the great daily markets, with their fish and water fowl and swarms of purchasers.

The citizens had their "sweet wine of Khemi, pomegranate wine and wine from the vineyards," and to these they added "beer of Kiti."

There was music in plenty furnished by the singers of the school of Memphis.

On the whole Pa-Rameses seems to have been a pleasant place to live in. "The lesser folk there are equal with the great folk," and Panbesa writes that its maidens were "in holiday attire every day," with locks "redolent of perfumed oil."

The United States Fish Commission has been engaged recently in a most curious investigation respecting prehistoric pearls. Immense quantities of these beautiful objects have been discovered in the ancient mounds erected by a forgotten race in the Mississippi valley, especially at certain points in Ohio. The evidence thus obtained proves that some of the chiefs, whose people formerly inhabited that region, did actually possess treasures in this form which far exceeded in value those owned by the richest crowned heads today.

In fact, there are no collections of pearls in existence at the present time that would compare with those gathered by the aboriginal connoisseurs referred to. In some of the

mounds pearls have been found not by hundreds of thousands, but by bushels—large numbers of them approaching or even exceeding in size a hazel nut.

How such enormous stores of them were gathered is a problem not easily solved. The pearls were certainly obtained from a species of mussel called the "unio," which is still found in great abundance in many of the streams of this country; but in those days the shellfish in question must have been far more plentiful than now, and it is probable that the aborigines of the Mississippi valley depended upon it to a great extent for food. It may be imagined that the pearls were secured incidentally, and that quantities of them were accumulated in the course of time. No more beautiful pearls exist in nature than those yielded by the unio, and the collections described must have been magnificent indeed in the period of their glory. Apparently they did not belong to the tribes at large, but were the property of the magnates of those days. Unfortunately, all of them have been ruined by decay, due to long burial though an occasional specimen reveals something of its pristine beauty when its outer layers are peeled off.

In the famous Effigy mound, near Chillicothe, Ohio, was found, more than a gallon of pearls, with two skeletons. They ranged from the size of a millet seed to a diameter of two-thirds of an inch. All had been drilled with holes, made with a heated copper wire. This drilling was undoubtedly for the purpose of attaching them to clothing or belts, as illustrated by the fact that 400 or 500 had been sewed originally upon a shirt worn by one of the skeletons.

In other places in the same region, more than forty bear's teeth, with pearls set in them, lying near skeletons, were discovered.

From a mound in the Little Miami valley, Professor F. W. Putnam obtained over 60,000 pearls, nearly two bushels, drilled and undrilled. Two other deposits yielded upward of 100,000 pearls.

Plenty of evidence as to the possession of great stores of pearls by the early aborigines of this country is afforded by the writings of the first explorers of the New World. The attention of Columbus and other Spanish discoverers was attracted to the matter, and a story having a bearing on the same subject is told of the followers of De Soto, who came upon an Indian town near what is now Tampa Bay. At one end of the town was a temple, on the top of which was perched a wooden fowl, with gilded eyes. In these eyes were pearls of huge size.

When the Indian queen, whose name was Ucita, welcomed the strangers, she drew from over her head a long string of pearls and threw it around the neck of the leader of the expedition. The Spaniards returned this courtesy by robbing the tombs in the neighborhood, obtaining from them about 350 pounds of pearls. It is further recorded that the queen, whom De Soto kidnapped, succeeded in making her escape, carrying back with her a box filled with unbored pearls, the most precious of all her jewels.

To Dr. Ales Hrdlicka, a young New York physician, belongs the credit of having discovered a new and strange race. In the almost inaccessible heart of the wild Sierra Madre Mountains of Mexico he has found a dark, handsome people, pure blooded aborigines, living just as they have done since the beginning of the sixteenth century, when the Spaniards destroyed their vast empire. They are direct descendants of a once mighty race, its exact counterpart in physical appearance, in mental aptitude and in everything by which the real civilization of our predecessors on this continent may be ascertained.

A generation ago men marvelled when the crumbling foundations of one of Montezuma's temples were excavated in Mexico. Scarcely two months have elapsed since Marshall H. Saville identified ruins on Monte Alban, which had previously been regarded as unimportant, and found them to be the skeleton of a magnificent prehistoric metropolis called Zachila, the capital city of the most powerful nation of its day in America. But though countless relics of wonderful prehistoric architecture have been brought to light during the last few years, never until now, when news of Dr. Hrdlicka's great work is given to the public for the first time, has anything beyond mere conjecture been known of the appearance and real character of the race which centuries ago built magnificent temples, pyramids, aqueducts and walled cities in Mexico, and there developed splendid empires, which, had they been known to the rest of the world at the time, would have rivalled the kingdoms of the Orient.

While conducting a tour of exploration and research for the American Museum of Natural History, New York, Dr. Hrdlicka identified strange tribes with the foremost prehistoric nations of Mexico, and by his researches among these tribes he has found out what the

ancient people were like when they held undisputed sway over the American continent. He conducted his studies from anthropological, physiological and medical points of view.

The results of his work are scientifically thorough and of practical value. They are of surpassing interest, because they throw a vivid light on the human and inner side of ancient American culture—the side which modern scholars believe furnishes a true index of real civilization. The officers of the museum, who are the only ones yet acquainted with the full import of Dr. Hrdlicka's work, regard his researches as aptly supplementing Mr. Saville's recent revelation on Monte Alban, and, further than this, believe that the discoveries here recounted mark a new era in anthropological science.

Some remarkable Buddhist antiquities recently discovered in India have been described in the Allahabad Pioneer by Vincent Smith, a well known antiquary.

Some years ago the discovery of an inscribed pillar, erected in the third century, indicated with certainty the site of Kapilavastu, the home of Gautama Buddha, who lived about 500 B. C. The ruins of this ancient city are now covered by a jungle, but are being excavated, and thus buildings more ancient than any previously known in India are being brought to light.

Another discovery, also in Nepalese territory, close to the British frontier, is that of a brick tumulus containing relics of Buddha himself. These are fragments of bone, in a decayed wooden vessel, with which we found five small vases of soapstone and a very fine bowl of rock crystal, all containing gold ornaments, pearls and precious stones, besides various objects delicately wrought in crystal and agate.

This collection was deposited in a massive coffer of sandstone, buried under eighteen feet of masonry. An inscription on one of the vases states that the relics are those of the Buddha, and indicates that the tumulus was constructed about 300 B. C.

We all know, says Major J. W. Powell in the Atlantic, that all our tribes were primitively zootheistic; that is, they worshiped beast gods, which beast gods were the primordial animals—the progenitors and prototypes of existing animals. The gods of each tribe were the particular animals of the habitat of that tribe. True, they all worshiped the heavenly bodies; but they supposed them to be the primitive animals transported to the zenith world. They also worshiped certain animals of the nadir world—the underground beast. Thus they assigned the birds to heaven; the badgers, moles and other burrowing animals to the nadir; and the other animals to the four cardinal regions. Their progenitors or prototypes are still believed to inhabit these distant regions, and such birds and beasts as are now found here to have come from these regions as their primitive homes.

Thus, all the American Indians have a cosmology of regions and a theory of animal gods; but the tribes differ from district to district in the personages of their pantheon. The gods are always organized as a tribe; but the chief of the tribe is now this, now that, mythic personage. Among the Utes it is Shinanav; and among the Zuni it is the sun. Among the tribes that have made the greatest progress in culture there seems to be a tendency to exalt celestial personages, and to adopt a philosophy which singularly resembles that of our Aryan forefathers. We are able to discover vestiges of ancient zootheistic belief among the tribes of the Orient; and we are also able to discover vestiges of a regional cosmology in many places throughout the Eastern Hemisphere. So we are justly entitled to believe that the cosmology and theology of the American Indian were at one time universal; but we are not able to trace any direct connection between the Orient and the Occident in the cults of primitive peoples.

We are, therefore, abundantly warranted in saying that the American Indian did not derive his form of government, his industrial and decorative arts, his languages, or his mythological opinions from the old world, but developed them in the new. Man thus seems to have inhabited the new world through all the lost centuries of prehistoric time. In fact, we are compelled to believe that man occupied the entire habitable globe anterior to the development of arts, industries, institutions, languages and cosmological opinions. * * * Now this primordial species, the ante-human species, was distributed from some geographic center or region, is the problem which remains for solution; and this cannot be solved by ethnology as represented in physical races or as exhibited in cultural characteristics. If it shall ever be solved it will be done only by geologic research—by discovering the remains of the man-animal in his primordial condition as they are buried in some geologic stratum.

For several years a German preacher from the town of Walbroel, Germany, has been at work, personally and through native agents, collecting ancient manuscripts and coins from the excavations in Palestine. The preacher's name is Bruesselbach and he has just published a little monograph giving the result of his labors. The publication has at-

tracted wide attention among archaeologists and scientific men, for the reason that the discoveries which Brusselbach claims to have made, and which seem to be authenticated by the facts, are the most important made in many years.

The most important of the discoveries is that of a manuscript supposedly written by Moses himself. The margin bears the name of Moses and the writing relates to the subjects treated in the early books of the Bible which have come down to use as the books of Moses. If the explorer can prove the accuracy of his belief in the august authorship of the manuscript which he has unearthed, it will be studied with interest as one of the oldest and probably the most valuable specimens of early writing in existence.

The fragment is remarkably well preserved and appears to be made from the skin of some aquatic animal, probably the hippopotamus or Nile-horse. It is a yellowish brown in color, crinkled and dry with age. The three drawings on it are done in black ink, and, as interpreted by the discoverer, apparently refer to the labors of the enslaved Israelites in Egypt. The Bible story runs (Exodus i, 11-14): "They (the Egyptians), set over them (the Israelites), taskmasters to afflict them with their burdens. And they built for Pharaoh store cities, Pithom and Raamsas. And the Egyptians made the children of Israel to serve with rigor. And they made their lives bitter with hard bondage in mortar and in brick and in all manner of service in the field."

The first picture on the recovered manuscript shows a maiden milking a cow, referring to the labors with flocks and herds. Above is a pack saddle with its two girths, a reference to the work of transport. There is also an Egyptian eagle, drawn exactly as it is found on the Egyptian monuments. The second picture is that of two men holding up a large winnowing frame, in illustration of their labors in the state granaries established by Joseph. The third picture is that of the foot of a pyramid or the base of a fortification wall, a specimen of the labor of brickmaking and building, in which the captives were employed. Upon the column is perched a hawk, the hawk and eagle being sister symbols of upper and lower Egypt.

While the pictures are interesting, the most important part of the papyrus is the inscription across the top. It is written in ancient script, hitherto unknown, but so primitive as to approach very closely to the hieroglyphic stage. It is translated by the discoverer: "Their yearning for freedom from the oppressor is full; their long continued sins cry unto Thee, O God." Whether or not the interpretation is accurate, the sentiment is a proper one to emanate from him who succeeded in giving the Israelites their desired freedom.

A. F. B.

Professor W. H. Holmes, head curator of the Smithsonian Institute at Washington, was in Stockton, California, October 15, making a brief study of the former Indian life of Stockton and vicinity. Professor Holmes was accompanied by Professor W. J. McGee, of the bureau of ethnology, of the same institution.

During their visit the two experts on Indian archaeology made a careful examination of the collections made by City Superintendent Barr, Rev. Mr. Meredith and Principal Hughes, of the El Dorado school. Sunday they visited several villages and burial sites on Roberts Island.

One of the objects of their visit to California was to make a careful study of the mortar and pestles left by the Indians. Careful drawings and measurements of a number of specimens in the Barr and Meredith collections were made. Two mortars from the Sterling place near Camanche were of special interest, the two having been hydraulicked out of a placer mine.

The two scientists say that this is one of the most interesting regions they had visited. The specimens found show that the Indian tribes formerly living in San Joaquin and neighboring counties were of a somewhat higher type than usually found. Some of the specimens found showed much originality. Several kinds have never been described in the Smithsonian and other government reports. Among the distinctive local specimens were nottery balls, crescent-shaped obsidian knives, and fish-hook-shaped bone ornaments.

The pottery balls are found scattered around all the village sites in the vicinity. They are made of clay, baked and are of various shapes and sizes. A few are ornamented with lines and dots. It is supposed that the crescent-shaped obsidian knives were used in religious ceremonies or in such operation as the crude surgery of the medicine men could master. Three of these knives were found near Stockton channel and presented to the Smithsonian by R. Belding some fifteen years ago. Several typical specimens were presented to Professor Holmes during his stay for the same institution.

In the course of a conversation, Professor Holmes remarked that Indian relics were of absolutely no value unless accompanied by full data. He said that field notes and accurate drawings of photographs, showing the position of the relic in relation to its surroundings, were imperative to establish the scientific value of any relic.

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RESEARCHES IN THE ULOA VALLEY, HONDURAS,

And Caverns of Copan, Honduras.

(Forming Nos. 4 and 5, Vol. I, *Memoirs of the Peabody Museum of American Archaeology*, Harvard University). By George Byron Gordon, Cambridge, Mass. 1898. Large 4 to 44 pp., 12 Pls., and 12 pp. 1 Pl.

I refer to these finely illustrated papers not for the purpose of review, but simply to call attention to one or two points.

The explorations in the Uloa Valley, although bringing to light **no** ruined temples or great crumbling edifices, resulted in the discovery of minor remains which have an important story to tell, for it is chiefly in records of this kind that the story of ancient America is to be read. The chief importance of these minor remains is found in the diversity of types, indicating, as Mr. Gordon suggests, an admixture of races, or at least a diversity of external influence. There can be **no** doubt as to the correctness of this conclusion; but the answer to the inquiry, *What races?* is not quite so apparent. Mr. Gordon may be correct in his conclusion that "the dominating influence was Maya." He has the means, in the large collections of the Peabody Museum, of comparison, and his personal familiarity with the subject will not permit us to question his judgment in such comparison; yet, while admitting his conclusion as to the evidence of Mayan influence, it is by **no** means certain that the people who left these remains pertained to that stock. The small pottery vessel (Fig. 11) bears unquestionably the same stamp as that of the vessel from Guatemala (Fig. 12), and the inscription on the latter contains beyond doubt the same elements as that on the Copan vessel (Fig. 13). But we have only to suppose the vessel found on the bank of the Uloa was introduced (a by no means improbable conclusion), to dismiss from consideration one of the strongest indications of Mayan culture. However, it must be admitted that some of the sherds shown on his Pl. I bear figures strongly suggestive of Mayan influence, and the group of ruins (Fig. 3) indicate the same influence. On the other hand, a number of his figures indicate Nahuatl influence, while others seem to belong to a still different culture.

It is apparent, therefore, that there must have been here a mixture of races, or what is more likely, people of a separate stock whose culture was affected by the culture of neighboring Maya, Nahuatl and other tribes. It is well known that Honduras has been in the past the habitat of several small independent stocks, hence it is quite probable that the remains discovered by Mr. Gordon are due to the people of one or more of these stocks. There appear to be local types, especially those shown on Plates VIII, IX and XI. A few sherds on Plate I show the well-known stepped design common from Arizona to Guatemala.

Mr. Gordon's explorations of the "Caverns of Copan" did not result in the discovery of any remarkable specimens, but they do furnish, when taken in connection with the explorations of caves in Yucatan by Mr. Mercer and Mr. Thompson, important corroboration of the results obtained by explorers, the evidence in each case tending to negative the idea of a race of lower culture antedating the historical tribes. It is true that Mr. Gordon says the pottery found in these caves is of a character entirely different from that found at Copan and does not resemble the pottery of any other locality with which he is familiar. If I may judge from his account and the figures he gives, I would be inclined to believe this pottery comparatively modern and probably due to refugees from Spanish cruelty.

It is to be regretted that the Museum was not permitted to continue the explorations at Copan.

CYRUS THOMAS.

U. S. Bureau of Ethnology.

CIST BURIALS IN ILLINOIS.

While in St. Louis, Mo., a few years since, I heard that some pottery and stone implements had been found on a bluff in St. Clair county, Ill., overlooking the Cahokia plain, within a few miles of East St. Louis. As that whole region is very interesting from an archaeological point of view, I took an early opportunity of visiting the place indicated in the hope of finding something that would repay the labor of examination and perhaps of excavation. On reaching the spot I found that the summit of the bluff had been an ancient burial place, and, from the number of excavations visible, that it had been quite thoroughly explored. After considerable search, however, I succeeded in finding a grave that had not been opened. It was a stone grave or cist in the form of a parallelogram, the internal measurement of which was 6 feet 4 inches long, 2 feet 6 inches wide and 18 inches in depth, made of rough, unhewn, flat slabs of limestone from 2 to 3 inches thick and irregular in shape. Each end of the cist was formed by a single slab; the western side was composed of three pieces and the eastern side of two, while three pieces formed the covering, making a rude box-shaped tomb. The stones were not fitted closely, but were arranged as well as their irregular forms would permit, and the crevices in the cover were protected by thin slabs laid over them; the earth formed the bottom of the grave. The stone used in its construction had evidently been procured from near the base of the bluff, where the rock crops out in strata of about the thickness of the slabs in the grave. The bluff faces west, and the head of the grave pointed to the northwest. The top of the cist was 24 inches below the surface, which was so level that no elevation or depression marked the site, which was discovered only by the use of a pointed iron rod as a probe. On removing the covering stones the skeleton of a male adult was found lying on the back; the bones were much decayed, but the skull was saved in fairly good condition, and was afterward improved by a thorough soaking in a solution of gelatine. Its late owner had evidently been a fighting man and had met some hard knocks, as the skull had been fractured in the right parietal region, but had healed perfectly, leaving merely a line marking the size and shape of the fracture. Another and a much more recent wound, however, had evidently been a fatal injury; a deep incision had been made, from its width evidently by a stone weapon, cutting completely through the superciliary ridge into the orbit of the left eye. That this wound did not cause immediate death is shown by a considerable formation of new bone in nature's effort to close the orifice; an abscess must have formed, however, as a small hole had been sloughed through the posterior wall of the orbit and another through the temporal bone. When taken from the grave the

skull was compactly filled with earth, which was removed by sluicing with water after the soaking in the gelatine solution. Near the right hip of the skeleton was a columella of a sea shell (*Busycon perversum*); between the feet and the stone at the end of the grave were four unio shells; near the right side of the head were two well-made stone arrow points and a small, coarsely-made, dark-colored earthenware pot. On removing the earth which this utensil contained, some dark, evidently vegetal, substance, about two inches in depth, was found at the bottom of the vessel, as well as a much decayed bird bone.

About two months later, in company with a friend, I made another visit to the locality, and after a close examination succeeded in finding another grave that had not been opened. This grave was exactly similar in construction to that previously discovered; but it was not so deeply covered, as the upper slabs were only 8 inches below the surface. It was, however, of rather smaller dimensions, being 5 feet 6 inches long, 23 inches wide, and 12 inches in depth from the lower side of the cover to the level of the earth which formed the bottom of the grave. This cist contained two skeletons lying side by side, an adult and a small child, both stretched at full length, face upward. The skeleton of the child was on the east side of that of the adult and close to it, the top of the child's skull being on a level with the breast. The bones, especially those of the child, were much decayed; so much so, in fact, that it was impossible to determine from them the sex of the adult, but from the small size of the skull it was supposed to be that of a woman. At the extreme upper end of the cist, on a line between the two skulls was a small pot about 5 inches in height, with pierced ears, which contained nothing but earth. In the eastern corner was a small mussel shell. On the child's side, about eighteen inches from the skull, was another pot, with projecting ears, not pierced, which contained a small bone. This bone, which was in much better preservation than the skeleton of the child, was pronounced by Dr. Stevens, of St. Louis, to be a portion of the pelvic arch of a child. On the western side, about on a line with the middle of the adult skeleton, was a piece of bone four inches long by one inch and a quarter wide and a quarter of an inch in thickness, which was indented, or scalloped, around the edges.

In neither of these graves was there found the slightest vestige of anything suggestive of clothing. The bodies had either been interred in an entirely nude condition or, if clothed, the garments had been so entirely decomposed as to leave not a trace. In both of the cists every part, including the pots and the cavities of the skulls, was filled compactly and firmly with earth, and so closely up to the covering slabs that their shape was sharply imprinted on the soil. The conjecture was that the earth must have been conveyed into the interior of the cists by the ooze of rains through the crevices between the slabs; but if that was the case it seems strange that the removal of so large an amount of earth from the space immediately surrounding the graves should not have caused some depression on the surface, which did not exist, as there was not the slightest alteration in the surface level to distinguish the spots where they were found. Yet it is hardly reasonable to suppose that stone enclosures would have been constructed and filled with earth at the time the burials were made, since such a procedure would render the cists superfluous.

[The foregoing paper, written by Major F. F. Hilder, Assistant Secretary of the United States Geographical Society at Washington City, D. C., a veteran archaeologist of widely extended experience and learning, was published in the February number of the *American Anthropologist*. The interesting locality visited by Major Hilder seems to have been the center of one of the colonies of the stone grave race of Indians that migrated from central Tennessee, descending

the Cumberland and Ohio rivers to the Mississippi, from which point they spread up the Illinois range of bluffs to the place he explored, which was the northern limit reached by them on the east side of the Mississippi. An offshoot of this settlement, or perhaps another colony from the parent stock, took possession of the region west of the river, along the Missouri bluffs, from St. Genevieve to the Riviere des Pierres, back of St. Louis, where numerous stone graves and mounds, enduring mementos of their long occupancy, are still to be seen. On the Illinois side of the river scattering stone graves have been found on or near the bluffs as far north as the mouth of the Illinois river; and three of them, side by side, were discovered a few years ago at the foot of the south bluffs of the Sangamon river, in Cass county, ten miles above its mouth, and a hundred miles north of St. Louis. These scattered cist burials indicate the presence of separate families, or hunting or war parties, strayed off from, or sent out by, the main body of the tribe stationed southeast of Cahokia. The necropolis of these ancient aborigines examined by Major Hilder was partially explored in 1843 by Dr. A. Wislizenus, of St. Louis, who opened a dozen, or more, of the graves, and made a full report of the results of his work to the Academy of Science of that city, subsequently printed in the first volume of Proceedings of that institution, p 66 et seq. Regarding their probable antiquity, Dr. Wislizenus says: "Some are of the opinion that modern Indians, as, for instance, the Kaskaskias, are the authors of these graves; but no modern Indians, within my knowledge, bury their dead bodies in this manner; and even the oldest inhabitants of that part of Illinois, who have lived there both with the Indian and the buffalo, do not recollect any such custom among these Indians in burying their dead. It seems, therefore, more rational to suppose that these graves were built and used by an Indian race which disappeared before the intrusion of the white man."

But the late Prof. Charles Rau, who visited the same locality some ten years later, very strangely inferred that the stone graves were those of recent Indians—not Shawnees, but Kickapoos, a tribe that never inhabited that part of Illinois; the extreme southern limit of their range having been on the Sangamon river, over a hundred miles north of this very ancient cemetery.

Of the many persons who have examined the osseous remains in these Illinois cists, Dr. Wislizenus is the only one who has mentioned that peculiar artificial flattening of the head at the occiput, that characterizes the skull found in the stone graves of the Cumberland Valley, and unmistakably identifies the people of these Illinois stone burials as of the same stock. He succeeded in exhuming from the cists, and saving in fair condition, four skulls, which he subsequently presented to the distinguished craniologist, Dr. Samuel George Morton, of Philadelphia; and describes them as follows: "All of them bear the unmistakable signs of the American race, to-wit: the broad, massive lower jaw, high cheek-bones, salient nose, full superciliary ridge, low forehead, prominent vertex and flattened occiput."

In the three stone graves mentioned as having been found near the foot of the Sangamon bluffs, in this (Cass) county, the crania were in such extreme stage of decay and so fragmentary that but one could be satisfactorily examined, and that one was artificially flattened at the occiput.

It appears that Dr. Wislizenus, Prof. Charles Rau and Major Hilder visited only that portion of the stone grave cemetery situated on the summit of the bluffs and overlooked much the larger part of it near their base. In 1838 Harper & Brothers, of New York, published, anonymously, an exceedingly bright little book of travels, in two small volumes, entitled "The Far West." Its author was Edmund Flagg, one of the most popular and brilliant magazine and newspaper writers of that day. In the course of his journeyings, on horseback,

in the then Far West, he arrived one day, after traveling "several hours through the weltering vegetation" of the American bottom, to the cabin of a "squatter" at the base of the bluffs near this old burial place of unknown aborigines. His host, whom he described minutely, was quite an intelligent and eccentric character. After breakfast next morning, they together climbed to the summit of the high bluffs "several hundred feet," and there, seated on the top of one of the numerous sepulchral mounds of the later Indians that crown the crests and peaks of all our river bluffs, he says: "And well did the magnificent view commanded from the top compensate for the toil of the ascent. The scene was grand. 'Yonder,' said my companion, seating himself (on the mound) at my side, and stretching out his arm to the southeast, 'yonder lies the village of Old Kaskaskia, with the bluffs of the river beyond rising against the sky; while a little to the left you catch the white cliffs of Prairie du Rocher. In that heavy timber to the south are the ruins of Fort Chartres, and to the right, across the lake, fifty years ago stood St. Philippe. The Mississippi is concealed from us, but its windings can be traced by the irregular strip of forest which skirts its margin. Beyond the stream, stretching away to the northwest, the range of heights you view are the celebrated cornice cliffs above Herculaneum; and at intervals you catch a glimpse of a shot tower, resting like a cloud against the sky, upon the tallest pinnacles. The plain at our feet, which is now sprinkled with cornfields, was once the site of an Indian village. Forty years ago the ruins of the wigwams and the dancing circle surrounding the war-post could be distinctly traced out; and even now my ploughshare every spring turns up articles of pottery which constituted their domestic utensils, together with axes and mallets of stone, spear and arrow heads and knives of flint, and all their rude instruments of war. Often of a fine evening,' continued my companion, after a pause, 'when my work for the day is over, and the sun is going down in the west, I climb up to this spot and look out over this grand prospect; and it almost makes me sad to think how the tribes that once possessed this beautiful region have faded away. Nearly forty years ago, when I came with my father from Old Virginia, this whole state, with its prairies, and forests, and rich bottoms, was the the hunting ground of Indians. On this spot we built our cabin; and though I have since lived far out on the outskirts of the Missouri frontier, I always had an affection for this old bottom and these old bluffs, and have come back here to spend the rest of my days. But the Indians are gone. The round top of every bluff in yonder range is the grave of an Indian chief.'

"While my singular companion was making these observations, somewhat in the language I have attempted to give, interrupted from time to time by my inquiries, I had myself been abstractedly employed in thrusting a knife which was in my hand into the yielding mould of the mound upon which we sat, when, suddenly, the blade, striking upon a substance somewhat harder than the soil, snapped into fragments. Hastily scraping away the loose mould to the depth of some inches, the femur of a human skeleton protruding from the soil was disinterred, and, in a few minutes, with the aid of my companion, the remnants of an entire skeleton were laid bare. Compared with our own limbs, the bones seemed of a size almost gigantic; and from this circumstance, if from no other, it was evident that our melancholy moralizing upon the destinies of the Indians had been indulged upon a very fitting spot—the grave of one of their chieftains. Originally, the body had no doubt been covered to the depth of many feet, and the shallowness of soil at the present time indicated a lapse of centuries (?). Still these graves of the bluffs, which doubtless belonged to the ancestors of the present aborigines, will neither be confounded nor compared with the gigantic earth heaps of the prairies. Strangely enough, this has been the case, though a mo-

ment's reflection must convince one that they are the monuments of a far later race.

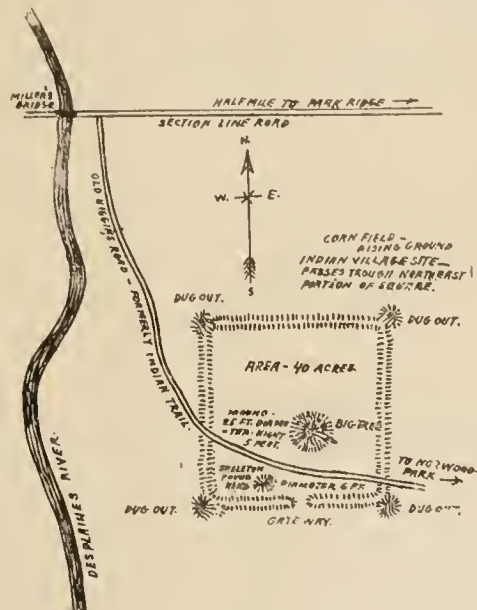
"Descending the bluffs by an ancient path in a ravine, said to have been made in conveying oak timber to Fort Chartres at the period of its erection, my host conducted me into one of the enclosures of his farm, a spot which had evidently once been the ordinary burial-place of the ancient Indian village. Graves, sufficient, apparently, for hundreds of individuals, were yet to be seen upon every side. They were arranged parallel to each other in uniform ranges, and were each formed by a rough slab of limestone upon either side, and two at the extremities, terminating in an obtuse angle. From several of these old sepulchres we threw out the sand and, at the depth of about four feet, exhumed fragments of human remains in various stages of preservation, deposited upon a broad slab of limestone at the bottom. When taken together, these slabs form a complete coffin of stone, in which the body originally reposed; and this arrangement, with the silicious nature of the soil, has probably preserved the remains a longer period than would otherwise have been the case. But the circumstance respecting these ancient graves which chiefly excited my astonishment was their marvelous littleness, none of them exceeding a length of four feet; and the wondrous tales of a 'pigmy race of aborigines' once inhabiting the West, which I had often listened to, recurred with considerable force to my memory. Resolved to decide this long-mooted question to my own satisfaction, if possible, the earth from one of the graves, the most perfect to be found, was excavated with care, and upon the bottom were discovered the femur and tibia of a skeleton in a state of tolerable preservation, being parallel to each other and in immediate proximity. Proof incontestible, this, that the remains were those of no Lilliputian race four feet in stature, and affording a fair presumption that the limbs were forcibly bent in this position at the time of burial. In this manner may we satisfactorily account for the ancient 'pigmy cemetery' near the town of Fenton, on the Merri-mack, in Missouri, as well as that on the Riviere des Pierres, in the same vicinity, and those reported to exist in various other sections of the West, in which, owing to the dampness of the soil, the remains have been long since resolved to dust, and only the dimensions of the graves have remained.

"Among the articles which my host had procured from these old graves, and deemed worthy of preservation, was a singular species of pottery, composed, as appeared from its fracture, of shells calcined and pulverized, mixed with an equal quantity of clay, and baked in the sun. The clay is of that fine quality with which the waters of the Missouri are charged. The vessels are found moulded into a variety of forms and sizes, capable of containing from a quart to a gallon. One of these, which my host insisted upon hanging upon the bow of my Spanish saddle as I mounted, was fashioned in the shape of a turtle, with the form and features very accurately marked. The handle of the vessel, which was broken off, once formed a tapering tail to the animal, presenting a rare specimen of a turtle with that elegant appendage."—Editor.]

F. F. HILDER.

MOUNDS NEAR CHICAGO.

Some of the mound-building Indians, at a remote period, dwelled along the banks of the Desplaines river, the "She-shik-mo-a" of our modern Indians, in the vicinity of the present city of Chicago. The gigantic truncated mound, described and pictured by Schoolcraft, at Joliet, in Illinois, compares favorably with that at Cahokia; and following the River Desplaines northward from Joliet are a number of burial mounds at "The Sag"; and yet four miles nearer the city is an extensive system of mounds at Willow Springs. Two of these, conical in form, judging from what the vandal relic-hunters have left of them, were perhaps fifteen feet in height. Proceeding northward still we come to Mud



Lake on the summit, once an outlet of Lake Michigan, by way of the Chicago river, into the Desplaines, constituting the Chicago Portage of the early French explorers. Passing the Lyons-Riverside Indian village site we come to the Forest Hill cemetery group of mounds, described by Col. J. W. Foster; and a little farther northward yet is a series of twelve mounds, some large, some smaller, both oval and circular. In this group is the Kennicott mound, from which Col. Foster obtained those strange human skulls so much resembling that of Neanderthal. Some six miles still farther north are the Park Ridge mounds enclosed in a true square area of forty acres, with earthen embankment on each side and a gateway midway in the southern wall. From this point southward to "The Sag" I have, for convenience, designated the Chicago region. Extending beyond these limits my future aim is to minutely examine all prehistoric remains from Waukegan on the north to Joliet southward, and from Lake Michigan to Fox river westward, a territory made historic by early French priests and explorers, and abounding in remains of aboriginal life of which we have but dim knowledge. It was in this region that the mound builders of the south and the Ohio valley met those who made the effigy mounds of the north, and bar-

tered their southern products for Lake Superior copper. The Chicago river was apparently the dividing line between these two branches of the mound building people.

La Salle calls it the division line between the Miami and Mascoutin Indians, the latter so-called "Fire nation" of early French writers; but which term is a misnomer and meaningless as applied to these wild and fierce savages of the prairies of Illinois and Wisconsin, who were Algonquins. The true Fire nation comprised the ancient natives who worshipped fire as a sacred emblem and kept it eternally burning in their temples, from Arizona to Peru.

I have mentioned this merely as an introduction to my description of the Park Ridge group of mounds, which combine both the pyramid and effigy order, a mingling and blending of both. In this Chicago region of antiquities there is a Serpent mound and a Lizard mound; also an unfinished Entaglio mound; and artificial causeway across a swamp, and a circular platform mound with a graded approach. The Chicago Lizard mound is duplicated by a similar effigy at Milwaukee, Wisconsin, at which latter place there was also formerly a conical mound equal in height to the noted one at Miamisburg, Ohio, and very similar to it in form and outline. Now as to the Park Ridge mounds: The other day, in company with my friend, Mr. F. Scharf, I revisited them with the view of gaining, if possible, further information concerning them. We were told by the owner of the land upon which they are situated, an old settler by the way, that when he first located here the larger mound was perfectly rounded and overgrown with fine grass, and that a large oak tree was growing on its summit. Its stump, fully four feet in diameter, is still to be seen there. He said also that a square formed by an embankment on each of the four sides, seven feet wide at the base and a foot and a half in height, well-defined, probably supporting palisades originally enclosed the mound; which he regarded as an "Indian graveyard" because it was "fenced in." The mounds have disappeared through the leveling agency of the plow; the situation of the larger one being indicated by only a slight circular elevation, and of the smaller one by heaps of earth surrounding a hole; and the enclosing earth embankments of the great square are obliterated with the exception of a small portion near the small mound, at which point there was originally a gateway. These works are about two hundred yards from the banks of the Desplaines river. The small mound was "dug into" by the proprietor's sons, who report having found in it a human skeleton in a sitting posture, with its face to the east, with a stone spear and an arrowpoint by its side. The large mound has not been vandalized, and we are preparing to explore its base by trenching it from side to side a la Moorehead or Dr. Snyder; and, when through, will report to you the result of our labors. The fragments of the skeleton found in the small mound by the boys, that I have examined, are evidently remains of an aged person. On the old Indian village site at this place have been found many pieces of broken pottery, hammerstones, arrowpoints, etc., the usual indices of long-continued occupancy; and the flint implements recovered here show a marked degree of difference in workmanship, one class being rough, ill-shaped and poorly finished; while the others are exquisitely proportioned and neatly made. Thus the inference is plain that two peoples of different degrees of culture successively inhabited this locality; the one were mound and effigy builders, the others a later stock.

The contrast between the contents of the Haas Park mounds and those of Park Ridge is worthy of notice. Those exhumed several years ago by Col. J. W. Foster are fully described in his "Prehistoric Races." In the large grave in which the French relics occurred, the burials, twelve in number, were made by laying the bodies flat on the back and disposed in a circle with the feet at

the center. On one of these skeletons was a large concave disk of German silver with the picture of a wolf engraved on its concave surface. This was probably the skeleton of a chief of the wolf gens of the Illini tribe.

Since the above was written I have learned of a cluster of about a hundred mounds five or six miles north of Park Ridge, in the Desplaines-North Field region. These mounds are similar to the Kennicott mound in form and construction, and are scattered about without system or regularity. The majority of them are conical and are probably sepulchral monuments. They are in close proximity to the Skokie marsh at the head of the north branch of the Chicago river. At Morton Grove, near the foot of this marsh, a mound was situated which, upon examination some time ago, was found to contain Indian remains and articles of French manufacture. However, they were very probably intrusive burials, as they occurred but a short distance below the surface. With a party of Chicago scientists we recently trenched one of the twelve mounds above mentioned, finding two skeletons buried in squatting position; but I must defer the report of this exploration to a future paper.

CHAS. A. DILL

Chicago, Ills.

DELAWARE INDIAN VILLAGE SITES.

Along South Mountain Run.

(No. 12.)

One mile west from the Indian village sites described in No. 11, on the monoclinal or southern slope of the South Mountain range of hills, are numerous interesting camp-sites, sub-camp sites, cornfields, implement manufacturing sites, workshops, mounds and ruined fire sites, which will here be described as briefly as possible:

In the writer's boyhood days his Greek and Latin studies were supposed to comprise all he could hope to know of ancient art and literature. Whatever transcended those limits he was compelled to set aside as pertaining to the domain of fable and conjecture. Even now savants and scientists are "called down" when opportunity offers, by a certain class opposed by them, whenever their pet theories are in danger of toppling over, not being based on practical or proven facts.

But, happily, scientific exploration is now conducted by men who study facts, and not theories, and who are thereby enabled to open out a more extended view and direct attention to anterior periods and a wider field of operation.

Geology has mined the crusts of the earth and displayed to us evidences of former cycles of time and ages of stone of too vast duration to be intelligently guessed; but what astonishes the writer in his explorations is that in the glimpses which are obtained of these most ancient peoples and periods, one finds that at periods they had attained to a high standard of art culture, while at others their greatness was on the wane. These explorations have enabled practical and unbiased archaeologists to fix their ideas upon a determinate basis and afford a standpoint which is needed for further investigations. Turning our attention to a camp site on the east bank of the brook noted at the head of this article, the writer finds that all the arrow and spear points at this camp were composed of jasper obtained at the Durham jasper quarry, and were of all variety of manufacture:

stemmed, deeply notched, barbed, leaf-shaped, triangular, long and slender, broad, etc. The hammer stones were principally glacial boulders found along the Durham creek. Among the relics here obtained was a triangular crystallized flat piece of limestone. The specimen was about six inches across from point to point, and one and one-fourth inches in thickness. As there is no exposure of white crystalline limestone nearer to this locality than Sussex county, New Jersey, the Indians must have brought it from that locality, a distance of at least thirty miles. Several mealing stones composed of glacial gravel were also found here. As the locality has been farmed over a century, no mounds or fire sites could be discovered; yet numerous burnt and broken boulders were found, showing that the locality had been inhabited during many years.

Five hundred yards due north of the camp site, surrounded by primitive oaks as late as 1874, was situated their playground and cornfield. In the center of this field stood, until within a few years, a huge tulip poplar tree, measuring six feet in diameter. No shrub or sign of vegetation, other than pennyroyal, was found growing on the field, which contained over seven acres and was called the Indian field by the old settlers, and until this day is called the same. A short distance east of this field was an Indian workshop, or implement manufactory; but as the site is a dense forest, and has been so during countless ages, it is exceedingly difficult to get the exact dimensions, but by digging a trench some fifty feet in length along its trend was discovered an immense number of rejected arrows, spear points and refuse, extending through the undisturbed soil and underlying gravelly clay to a depth of two or more feet, showing that even the red Indian occupied this section for a longer period than is taught by some, and conclusively proves that he did not drop from the skies ready-made a few years before the advent of the white man, as some claim.

About one hundred yards due north from the aforesaid Indian field, are located several mounds of undoubted Indian origin. The larger mound is twenty-one feet in length and eleven feet wide, and three feet in height, and as the locality has during, or at least since quaternary time, been densely wooded, it has thus far escaped obliteration and remains in its primitive condition. The remaining three or four mounds have been partly destroyed by lumbermen while dragging logs in the vicinity. Near the larger mound is a large spring of pure water and a large bed of *lobelia inflata*, which, when in bloom, reminds one of a well-kept flower garden. Directly north of these mounds is a large spring of ice water, the temperature of which remains about fifty-five degrees in summer and winter, and is intermittent in its flow. Situated at the foot of a steep incline of granulitic rocks, elevated eight hundred feet above tide-water, the cause of this intermittent flow is inexplicable. About half a mile further northward, in a cultivated field, at present a

¹During the many years devoted by the writer to the study of primitive man, his customs, habits and mode of obtaining subsistence, he has always doubted that these extensive fields or areas of cleared ground were originally designed and the timber removed, for agricultural purposes. Early man was a hunter and not an agriculturist, and led an arthoreal life. His food consisted of wild animals, obtained in the chase, killed, and eaten after a certain season—the meat first undergoing a primitive process of seasoning. Primitive man had no need for corn or other grains until he had sufficiently evolved or attained a status of intellectual ability equal to his contemporaries in other portions of the globe, who were undergoing the same process, evolving from the lower status of humanity to a more intellectual one, and as they advanced to a higher state of culture they improved their systems of ethics of government, their arts, etc., as the Europeans found them on the discovery of America. Hence we always contend that these clearings were originally designed by the predecessors of the later Indians for drives or slaughter pens to capture wild animals, and later when sufficiently advanced in the arts and intellectual ability, as training grounds and for agricultural purposes. See "History of the Red River," by Alexander Ross.

peach orchard, one finds large numbers of arrows, celts, knives and spear points, over a space of several acres. Why they are so copiously strewn without any evidence of a workshop having been located here, remains open to conjecture; but the site may have been that of an observation camp for which the situation was well adapted, being close to water and having an extended view southward. One mile west from the latter site is located an important sub-camp site, but as nearly all of this camp site is, and has been, thickly wooded, and no doubt will continue thus for centuries, it will be a real "Klondike" for the twentieth century archaeologist and ethnologist to fully explore.

The whole valley on either side of the stream is strewn with the debris of these primitive people, but, as noted above, nearly the whole distance from where its waters empty into Durham creek, to its source several miles northwest, is yet in its original virgin, uncultivated forest condition, and hence very difficult to explore; yet enough has been learned to establish the fact that the latest of these primitive people to inhabit this section and reside upon the foregoing described camp sites, were undoubtedly remnants of the once powerful tribes of Delaware Indians who originally inhabited western New Jersey and eastern Pennsylvania.

CHARLES LAUBACH.

Riegelsville, Pa.

LEFT BY THE YACH-ICH-UM-NES.

The present site of Stockton, Cal., was once the center of a numerous Indian population. No other portion of the opulent West, perhaps, was so gracious to aboriginal man. The broad plains were studded with great oaks bending under the burden of their fruitage. The rivers were filled with fish and the sloughs with mussels. Water fowls swarmed in countless thousands. As late as 1853, driven by high water from their covert, large numbers of elk were caught in the corrals of the stockmen; and to a much later day bands of deer and antelopes roamed a region still well filled with smaller game. Add to these conditions a salubrious climate, and you have the ideal home of primitive man. And the swarthy sons of California occupied to the full extent of their ability. Colonel J. J. Warner, who, as a member of the Ewing Young trapping party, passed through here in 1852, is on record as saying: "On no part of the continent which I had then, or have since, traveled, was so numerous an Indian population."

The Mokelkos claimed the land between the Mokelumne river and Dry creek on the north, to a mile and a half beyond Stockton on the south. They were divided into three tribes, known as the Mokelkoš, the Lalos and the Macharoes, and are recorded as having about thirty villages of two or three hundred inhabitants each.

The Yachichumnes, or Yachikas, as they are also called, occupied between French Camp Slough and the Calaveras river. Their principal village was where Stockton now stands. Another village rested on the north bank of Walker slough, a short distance south of the first. It is to these sites that reference will be made in describing the unique and beautiful objects shown in the accompanying cuts, drawn two-thirds their actual size.*

The site on Walker slough was visited in 1896 by Edward Hughes, a prominent Stockton educator, in company with Mr. James Barr, superintendent of city schools. These gentlemen spent several days excavating, and each recovered

*Of the specimens figured, two are in my own collection; others were found by Prof. Barr at Walker Slough, and some were found by H. H. Barr, his father, at the Stockton Channel Mound. No. 11, with some others, was given to Prof. Wm. H. Holmes when here recently.

H. C. M.

a number of the curious curved and serrated objects. Professor Barr secured a possible two dozen; Professor Hughes perhaps half as many more. Without anticipating their reports (which will be written for the Smithsonian Institution), will merely say that the objects were taken, for the most part, from contact with the skulls.

At the time the writer viewed this site it had been so much disturbed by the building of an immense levee that it was difficult to get a correct idea of its area, etc.

The larger site is on the north bank of Stockton slough. Two-thirds of it was cut away by the enlargement of the channel at that place, and a levee covers much of the remaining portion. The cut along the channel discloses a stratum of ashes seven hundred feet long, and from an inch to four feet in thickness. Mr. William Crosdale, a pioneer living near the place, tells me that in '49 there were a dozen mud and brush tepees on the site, each sheltering the usual number of inhabitants. All these disappeared in '52.

This site and its curious crooks was first reported by Mr. Lyman Belding, a local capitalist and naturalist, in *Zoe*, a biological journal published in San Francisco. In Vol. III, page 200, he says he has collected there for fourteen years and adds: "The spear and arrow-heads found there were fine specimens of aboriginal skill. Two crescent-shaped knives or implements, which had probably been used in dressing fish, had their convex edges squarely notched, or blocked. They are, or were, on exhibition in the Smithsonian building in 1882, and differ from anything I have seen elsewhere."

Reuben Holman, a newsboy, who, in '91, lived near the place, informed me that, in excavating near his home, he unearthed a skeleton and with it seven of these curved objects, which, with several others found near by, he sold to two lads, one of whom removed to New York, and the other to San Jose, Cal. A letter addressed to the latter, B. Baker, brought the reply that he bought the specimens as represented and had himself found several at the same place.

Professor Edward Hughes sent several of these objects to the National Museum for examination in '97, and received from the curator the following memorandum, by Dr. Thomas Wilson: "The United States Museum has a number of obsidian objects like the ones sent by Mr. Hughes, and, singularly, they are from the same locality, i. e., an ancient burial place in Stockton, California. Of the curved obsidian objects we have three. Implements of that class may have been used for sawing or cutting; but obsidian is so fragile that this hardly seems possible on comparatively soft material. This form seems to be peculiar to that locality."

In August of '97 the father of Professor Barr excavated at this site a space about twenty-five by thirty-five feet; a surprising number of skeletons were unearthed, and not less than fifty curved obsidians recovered. Just how many I will not undertake to say, as Mr. Barr doubtless prefers to report for himself.

Later in the season two men representing themselves as from the East, began operations on the site. Local collectors regarded them with some distrust, but our best endeavors failed to find anything wrong with them, excepting as to questions of veracity. The writer saw and examined sixteen specimens taken by these parties from the Stockton site. They reported having found one specimen at Banta, twenty miles to the south. The statement probably is not credible.

Of the six specimens in the writer's collection, three are personal finds made by screening the earth excavated by Mr. Barr. One was acquired by purchase from Joe Paranni, a 13-year-old Italian. Another from a boy of the same age, who, with Joe, passes the site on the way to school. The other specimen was ac-



quired from Johnny Fletcher, a young laborer, who lives within fifty yards of the place.

The eighteen specimens shown include some of the writer's, but are mostly from the Barr collection. No. 1 is of black obsidian, glossy, opaque, notched for handle, serrated on convex edge and flat. No. 2, ditto, except notch, but is bent to the right. No. 3 is of beautiful translucent obsidian of almost gem quality, notched and serrated like No. 1, but bends to the left. Nos. 4 and 5 like No. 1, except handle notch, and are serrated on both edges. No. 6, ditto, but is bent to the left, and is not serrated near handle. No. 7, ditto material, notched, curved to the left one inch, then to the right; convex edge only serrated. No. 8, ditto material, notched, serrated on concave edge, bent to the right and then to the left with a twist which near the point sets the teeth on edge. No. 9, ditto material, no notch and flat; the only one without serrations. No. 10, ditto material, flat, convex serrations. No. 11, ditto material, double serrations, notched. No. 12, ditto material, no notch, double serrations, each end finished like the other. No. 13, notched, flat, serrated. No. 14, translucent, notched, flat, double serrations; smallest one found. No. 15, as No. 1, with double serrations. No. 16, ditto material, notched, double serrations, bent to left, exquisite workmanship. No. 17, ditto material, double serrations, narrowest found, bent sharply to the left at crook, point half inch out of line. No. 18, ditto material, strong serrations on outer edges, notched for handle, outer edges form a square and the inner the segment of a circle—the "Square and Compass!" Look for the rediscovery of the mis-called "Digger"!

As to the service these implements were intended to perform, I cannot believe it was either "sawing" or "dressing fish." I have seen the Indian method of doing the latter on several occasions, and know it to be very simple as to process and tools. A pointed stick or bone is thrust into the belly near the vent,



pressure is exerted by the hand claspings the fish till the intestines protrude; these are seized and drawn, the whole operation, according to my careful timing, requiring but six to twelve seconds. I cannot, therefore, conceive of the Indians employing these fragile and elaborately fashioned implements in such a crude and homely service.

As to sawing, Dr. Wilson well says that the fragile obsidian would make it impossible on even soft material. In making an outline of No. 16, I found that the cedar pencil was injuring the specimen.

At present the writer inclines to the opinion that they were used on occasions of sickness and ceremony for lacerating and bleeding the temples. On inquiring the cause of fresh wounds on the temples, in at least six different instances, I was given the answer: "Me sick; blood 'um." Careful inquiry continued through several years confirms the fact that they bled for certain ailments.

Again I have witnessed the tearing of the temples with the finger nails and other sharp objects on the occasion of death in the family, and at the annual ceremonies for the dead. These are variously known as "war dances," "fandangos" and "crys." They are occasions of greatest ceremony. The first few days are days of fasting and much humiliation; faces are disfigured and temples lacerated, while day and night are made hideous by their weird and thrilling "cry." Then follow elaborate washings, and these by feasting, dancing and revelry.

Now, the highly finished character of these objects identifies them with the best the Indian possessed, which, in every case, was reserved for occasions of ceremony. Their peculiar form and qualities would adapt them to a service which I know was performed with something similar. I conclude, therefore, that they are ceremonial bleeders.

H. C. MEREDITH.

Stockton, Cal.

CORRESPONDENCE.

To The Archaeologist:

I find it stated, to my surprise, in the Twelfth Annual Report of the United States Bureau of Ethnology, that the largest of the Etowah group of mounds, in Georgia, contains a greater number of cubic feet of earth than Fort Ancient, in Ohio, and is in fact next in size to the great Cahokia mound in Illinois. Colonel C. C. Jones, jr., says, in his Antiquities of the Southern Indians, that the form of the Etowah mound was pentagonal, and then he proceeds to state its summit measurements. Taking this as a fact that it was pentagonal, it would probably be interesting to your readers to know that there is a large mound on the banks of Miscooskee lake, in Jefferson county, Florida, called the great Jefferson mound, which a friend of mine who has resided within four miles of it, described to me as being seventy or eighty feet high and having a star-shaped base about one hundred and seventy-five feet in diameter, and fifty feet across its flat top. He was an intelligent, well-educated and truthful man; but you must understand that he guessed at these measurements; for if the mound has ever been measured I have never heard of it. Whatever doubt he may have had about its height and upper and lower diameters, he did not seem to have any about its star-shaped base, as he expressed it.

Measured on the two geographical maps of Georgia and Florida, the great Jefferson mound stands about two hundred and seventy miles a little southeast of the Etowah mound. You can therefore judge for yourself whether you do not think the same tribe of Indians built both mounds, shaping the summit of the one and the base of the other pentagonal and that Colonel Jones was not mistaken in his judgment as to the summit of the Etowah mound being in that shape.

W. D. HOWREN.

Georgetown, Texas.

[The late Colonel C. C. Jones was remarkable for the accuracy of his statements, as well as for his varied learning and fine attainments. All of his writings attest his superior intellect and are thoroughly reliable. We know nothing of the great Jefferson mound, in Jefferson county, Florida, mentioned by Mr. Howren, and do not remember of having ever seen it described in any archaeological treatise. Inquiring about it of Mr. Clarence B. Moore, of Philadelphia, who has perhaps a more extensive acquaintance with Florida mounds than any other person, he replied that he had never seen it and could give us no information concerning it. It seems strange that so grand a structure of the aborigines, as Mr. Howren's friend reports this to be, should be so little known by archaeologists. We will be much pleased to receive further and more minute descriptions of it for publication.—Editor.]

To The Archaeologist:

The mound which I recently excavated and which I promised you a report on, did not prove to be of much importance. Near the center, about six feet from apex of mound and one foot below the level of the ground, I found a skeleton lying, as near as I could tell, on its right side (so doubled up I could hardly tell), head to east, lying on a bed of charcoal, ashes and bones. A hole about one and one-fourth inches in diameter was in the skull just back of the temple. I think perhaps it was made by an arrow. Large pine trees had grown on the mound and had all decayed except the roots. This shows it to have been very old, since pine stumps do not decay very fast. The mounds which I explored are in an old pine barren, between two lakes, and there must have been quite a population of prehistoric people, since so many remains have been found. Although the land has not been cleared up much yet, I have found a great many arrow points, scrapers, etc., in the roads which run through the old pine slashing; while in the few fields which have been cleared up near the lakes, are found celts, arrow points, scrapers, and pottery fragments, etc. I recently found a very fine celt (polished) made of a beautiful green stone, only one I ever saw like it; most of the celts are of chlorite. A grooved axe, made of sand-stone, was found about a year ago.

All the skeletons which I have excavated from the mounds show the people to have been small in stature, and in some cases at least to have had longer arms than modern races have. The arrow points are nearly all of small size, and large spear-heads are rarely, if ever, found. Nearly all the implements show fine workmanship.

Cadillac, Mich.

C. W. MANKTELOW.

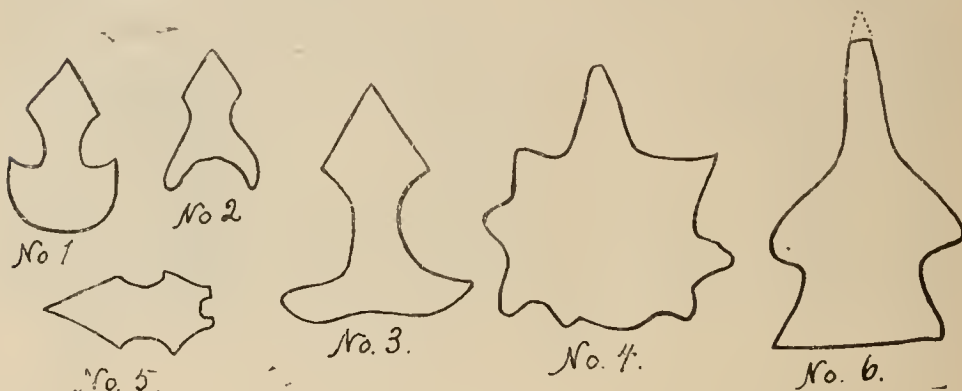
Editor of The Archaeologist:

I wish to call your attention, in the interest of science, to some unusual relics found in Wisconsin. These are most of them beyond the experience of the majority of collectors, and Nos. 1 to 5 are so unusual they might be pronounced frauds by "experts" who have handled limited numbers of relics. These came to me from a very reliable, elderly gentleman, who has resided forty-nine years in the township where they were found. He

sent me the first three some time ago, and at a glance I would have suspicioned them, and feeling a little doubtful, I sent to him for a statement of the circumstances of the finds. He readily sent me an affidavit vouching for the following facts, and the notary also made formal declaration, under his seal, at the same time, that "Mr. L. S. Drew is a man of excellent standing in the community in which he resides, and that his word is entirely reliable," and he resides at Farr's Corners, town of West Point, Columbia county, Wisconsin. He states under oath:

"The above drawings (first three) are from flint implements found on my farm, on Section 35, in the town of West Point, Columbia county, Wisconsin. No. 1 was found by Miss Eva B. Drew in my garden in the summer of 1888. No. 2 was found by Aug. Schmockel, or one of the men at work with him, in my field, where he was husking corn in the fall of 1891. No. 3 I found myself December, 1896, in a yard where I was feeding hogs. I remember the ground was frozen. I got some hot water to thaw the ground so as not to break it.

LEANDER S. DREW."



Mr. Drew has the largest Wormwood Works in the world. He sent me the last three, Nos. 4, 5 and 6, later for examination, and states that he has found many other relics of similar character on his farm. None of them are for sale. He is an old collector for his own personal pleasure, and is thoroughly seasoned in experience. I consider these relics very interesting for their unusual shapes, and especially as the material is different from the majority of arrows found in Wisconsin soil. No. 1 is similar to Wisconsin material, and is a dove-colored quartz called "flint." No. 2 is a cream-colored chalcedony; Nos. 4 and 5 are white chalcedony, and No. 6 is a milky quartz.

Here is some evidence that the ancient Indians from some distant section of the country dropped their "flints" in another section of the United States in times of trouble, when away from the locality that gave them birth, and where the material differed. As you go into the extreme West, the arrows are smaller than in the Middle States. The Western material is capable of being worked into smaller points than the coarser flint. In Missouri we find many small white arrows, and also along the Mississippi river in Illinois. This material, of a fine-grained texture, is really nearer chalcedony than anything else, and chipped small more readily in the hands of the red man than coarser stone. Where did the Wisconsin white relics originate?

L. W. STILWELL.

Deadwood, S. D.

Editor of The Archaeologist:

It is no pleasure to me to join issue with Mr. H. N. Rust, of South Pasadena, Cal., in this emphatic and public way; but his use of my name in the September Archaeologist takes away my option. I would be glad to extend to Mr. R. every consideration due his age, etc.; but I cannot become a martyr to courtesy, nor even to charity. In correction, therefore, of his statement aspersing not only my collection, but also my character as a man, I desire to submit certain facts; and let me say I would be pleased were these facts less severe on Mr. R. Moreover, if the statements I here make are not borne out by our correspondence and other evidence, I shall seek the courtesy of your columns to make public my apology.

With deliberation I say that Mr. R.'s statement does not contain "all the material facts"; and that it perverts, for the most part, those given. Perhaps his memory is at fault; if so I shall be pleased to accept such an acknowledgement.

My acquaintance with Mr. R. began last December. Desiring a South California correspondent, I addressed him, enclosing photos and drawings numbered 1, 2 and 3—No. 1, photo of two curved obsidian bleeders, one my own find, the other the property and personal find of a gentleman of this city; No. 2, photo of several fine arrow-heads; No. 3, pencil drawing of a quartzite knife. In introducing myself I said I was in "need of information"; had he seen anything like No. 1? I was thinking of publishing it as new, how did No. 2 compare with similar specimens he had published? was No. 3 found in South California? etc. A cordial reply was soon received, with outlines of some things of his own. The letter closed by asking to buy the bleeders and one of each type of arrow. The sale was politely declined. I had no specimens for sale; I knew, however, of two bleeders, and named the price quoted me and offering to buy them for him, or put him in communication with the owners. By return mail Mr. R. asked me to secure the specimens for him at once and expect a remittance. When next I saw the owners only one of the specimens could be acquired. I purchased and paid for the specimen and sent it to Mr. R., an act of courtesy and accommodation on which I did not make a cent, but on the contrary lost the amount of postage. It was in this sense that "one" was "ordered"—a word by the improper use of which the meaning of the whole transaction is perverted; and, like his innuend reference to my being "very successful in making arrow-heads," greatly discredits his motives. Moreover, Mr. R. did not pay "the modest sum of four dollars" for the specimen. He knows quite well he did not; and he should know that reference to his letters and the records of the postoffice certainly will humiliate him.

In the meantime I had sent other outlines of rare obsidians, and these also he sought to buy. Finally, he proposed to send me money to "buy on sight" for him "any fine things" at "prices I would pay," etc. This was declined for reasons named at the time. With this letter I sent the specimen. Neither were acknowledged until six weeks later I wrote him again, inclosing outlines of six spear-heads just found. A few days and a note came expressing doubt of the genuineness of the spears; would I send him a few for examination, and closing thus: "I will here say that I sold the specimen just as I had it from you, as I did not care to keep it at so high a price. It was a very curious specimen, but I could easily imitate it." There you are! This good man, who paraded his "conscience" in his arraignment of me, "SOLD" the suspected relic! He did not inform me, however, if it were his custom to sell the bogus relics acquired in his detective operations.

This was the first intimation I had of any doubt as to the relics. I immediately wrote Mr. R. regretting he had not referred his doubts to me. I asked him as a favor to give my address to his buyer and say I would prove the genuineness of the relic or send him the amount it cost in Stockton any time within six months.

Soon after I sent him five specimens by registered mail, only one of which belonged to the lot he had condemned from the outlines. With that spear-head I sent one I had found myself at the same place a few days later. It was labeled as my find. I also sent a fragment, worthless in itself and of which no account had been taken either in my report to him or in my deal with the finder. It was one of a half dozen broken specimens that came with the others, but for which no bargain was made and no price paid. That either of these specimens would be condemned of even "experted" I did not dream. They were sent for purposes of comparison with the first only, for each of these—my find and the fragment—showed characteristics identical with the lot of twenty odd.

With these went two of my best curved knives. They, like the other two, were unsolicited and were sent with no thought of their being "experted." My idea was that by comparing these genuine relics with the one sent, the genuineness of the latter would be concluded. That anything other than this would happen, never entered my mind.

Mr. R. had promised to return them "immediately." A week would have been ample for his professed purpose; he kept them nearly a month. Three days before they reached me I received Mr. R.'s indiscriminate condemnation of the lot. I wrote by next mail, saying "I positively know you are mistaken," and asked the grounds and specifications of his charge. If Mr. R. says I replied "indignantly," I must ask the publication of my notes of February 16th and 17th. I never felt indignation until the returned specimens reached me three days later; then I saw at a glance I had been made a victim! But I waited for an answer to my questions; a letter came; it was a letter of evasions. There was a word of truth in it, though. I quote it here: "I have on my table a flake one-fourth of an inch wide which I took from one of your specimens." I knew that a week or so before he wrote it, and credited it as truth. But the courts find it necessary to oblige men to tell not only the TRUTH, but the WHOLE truth as well! My letter asking Mr. R. to give the WHOLE truth in explanation of the condition of my specimens has not been answered yet. And now he asks that I send the same specimens to you for examination! Verily, he is a mod-

est and a reasonable man! I am "standing on my silent dignity"; he romances, when my letter asking this explanation, and further, what kind of evidence he would "accept," and offering to "do anything in the range of reason"—I quote from it—is yet unanswered. Remember, too, that I have not the slightest evidence that Dr. Palmer—used as a buffer—ever saw the relics as they were when mailed by me.

But, aside from the altered condition of my specimens, I could not accept Mr. R.'s judgment for the following reasons: First, he is not familiar with the archaeology of this locality; second, an expert would not predicate fraud upon the accident of a loose chip; he would know that the probabilities favored such being the result of injury from pick or trowel; third, an expert owes it to himself and to the man into whose collection he intrudes, to be possessed of all accessible information on the subject; had Mr. R. been so informed he would have known that these curved knives had been described in a California science journal five or six years ago, and that the United States Museum has been in possession of these "crooked things" for fifteen or twenty years; fourth, an expert would, if sincere, desire to examine other specimens taken at the same time and place; Mr. R. did not so desire, though I reported the finding of more than eighty specimens in bone and stone and shell, with one of those sent him; fifth, to predicate fraud upon the fact that he "could not imagine any practical use to which they could be applied," is to be childish; experts are not childish; this wise man should do a little detective work on his own collection; he has certain "corrugated discs," so he reports, the practical use of which he cannot "imagine"; of course it follows that they are bogus! Sixth, having condemned a specimen over which I broke the sod, and for which I dug three feet, and which I cut out of the compact earth with my penknife, I naturally do not consider his opinion of it and the others very valuable.

And now, Mr. Editor, I am sorry to have used your valuable space in this way, but I find myself unable to make a statement, fair to myself, in fewer words. Favor me, please, by saying to your readers that if any of them are interested in this small and miserable business, they are respectfully invited to look over my forthcoming article, "Left by the Yach-ich-nm-nes."

HENRY CLARKSON MEREDITH.

Stockton, Cal.

P. S. I forgot to say I never sold an ancient relic (or what pretended to be ancient) in my life. In answering Mr. R.'s insinuations I invited him to place an ad. asking correspondence with anyone having knowledge to the contrary.

H. C. M.

[With the foregoing communication and a paper entitled, "Left by the Yach-ich-nm-nes," we received from Rev. Mr. Meredith three affidavits sworn to and subscribed in regular form, with the seal of E. P. Foltz, a notary public, attached—one made by Mr. Meredith; one by John Thomas Fletcher, and the third by James A. Barr—in verification of the reverend gentleman's statements. This testimony is excluded for want of space, but can be produced at any future time if necessary. The other paper will appear in our next issue.

[Since above note was written we have received two additional affidavits from Mr. Meredith; one made by Edward Hughes, the other by H. H. Barr, subscribed and sworn to before Notary Public E. P. Foltz, of Stockton, attesting the correctness of statements made by Mr. Meredith regarding the discovery of certain obsidian implements of erratic forms.—Editor.]

Editor of The Archaeologist:

I have your note of November 27th making inquiries about the curious obsidian knives reported from Stockton by the Reverend Mr. Meredith. I am pleased to be able to say that, after careful examination of the objects and the conditions surrounding their discovery, I have no hesitation in declaring them genuine. They are knives of varied form, some having straight, others curved, blades, the most eccentric having an even curve on one edge and a right angle elbow on the other. They have been found by several wide-awake collectors, and I picked up fragments indicating like eccentricity of shape on the sites said to have furnished the numerous finds of Reverend Mr. Meredith, Mr. Barr, Superintendent of Schools, and Professor Hughes, Principal of the Eldorado High School, in Stockton.

W. H. HOLMES.

U. S. National Museum.

To The American Archaeologist:

Some months ago I found a skeleton along the banks of Deer creek, a tributary of the Scioto river, two miles below Williamsport, Pickaway county, Ohio. The old Indian had been buried in a peculiar manner. Peculiar, at least, for this locality; and I do not now recall ever having read of an interment having been so made.

During the freshet last spring the water cut away much of the embankment at the point above referred to, and I noticed some burned stones and earth were exposed about two feet below the present surface and about five feet above the water's normal level. (The bank sloped at an angle not exceeding 20 degrees.) Close examination revealed the fact that human bones were there also. I dug the earth away carefully. The body had been lain upon a bed of clay one and a half inches thick, beneath which was a large deposit of small periwinkle shells, supported on gravelly clay. Over the central portion of the body an arch of stone had been made. The stones ranged in size from that of a hen's egg to as large as a man's head. They were all smooth, and, I think, had been gathered from the bed of the creek, which, at the time of this burial, was doubtless fifty or seventy-five yards west of its present location. The stones seemed to have been coated over and plastered up with clay, which held them quite firmly in position. They had been carefully placed, fit snugly, and resembled nothing I have seen so much as a well-made pebble ditch, but of course, presented a convex surface. The old Indian's head had been left protruding from one side and his feet from the other side of this stone pile. That portion of the body which was covered with stones was burned to ashes, the bones leaving white streaks through the great mass of charcoal. I got a piece of skull half as large as my hand which showed no action of heat. The rest of the skull had been carried off by the high water. The bone from one arm was found intact; half the other was burned. One thigh bone showed the action of fire in all degrees. The upper portion was white powder; a little lower it was charcoal; further down only turned brown, and at the knee joint no evidence of the presence of fire could be detected. The stones were burned only on the under side, showing the fire had been enclosed in a kind of furnace.

I found no implements or ornaments of any kind with the body. There are four or five other patches of burned stones and earth about the same field, but I found no human bones among them. In a quarter of an hour's search, I picked up three perfect arrow heads, seven broken ones, one celt and more than a hatfull of pieces of pottery, from the size of a half dollar to a can lid. The field has been in continuous cultivation for over eighty years, yet every season the plow turns out new relics. Many fine pestles, axes, celts and arrow heads have been gathered up in this and adjoining fields, but none of the finer relics have been found to my knowledge.

Williamsport, Ohio.

TOM H. TIPTON.

Editor of The American Archaeologist:

The writer can tell his readers, and it may also interest Dr. Wilson to know who made the spurious, curious-shaped spear and arrow-heads figured in the last number of the above magazine. Ten years ago he received from a collector living in Ohio a number of similarly chipped objects for examination, which he said came from one named Charles N. Body, living at Orwigsburg, Schuylkill county, Pennsylvania, and that he (Body) had found them near his home. He claimed they were the remains of the Tuscarora Indians, a tribe who once lived in that county.

One look at them was sufficient for the writer to know that they were frauds. He knew also that the Tuscarora Indians never came nearer to Schuylkill county, which is in the eastern part of our state, than the valley of the Susquehanna, up which they emigrated from North Carolina into the State of New York, to join their Iroquois brethren. The whole of this valley was at the time of the first settlement, from the Chesapeake to the New York Lakes, owned and controlled by Iroquois-speaking tribes.* He also knew that the material from which these frauds were made was foreign to the county in which this "flint jach" said they were found. He was also made aware of the fact that this manufacturer of frauds had frequently sent him in exchange for his wares whole pecks of broken flaked implements, and, when too small to suit his nefarious ideas, became very angry, and the sender received a reprimand. These, when large enough, were chipped into the fantastic forms shown. The writer at once wrote this individual to please quote him prices on his so-called rare finds. An reiterate letter soon came in which was shown great anxiety to dispose of his wares from 25 cents up to \$1 per piece, and was also told of the fact that he was sending to his customers all over the United States and Canada many of his finds. The writer immediately informed him that if he did not at once quit this contemptible business he would have him arrested for using the mails to defraud. This threat put an end to the Orwigsburg factory, for the writer since then, although a close watch was kept, never heard more. A short time after an expose of this individual in the American Antiquarian, Vol. X, pp. 316-18, was shown

*The Lenapi and their Legends. Brinton, p. 15.

the writer a postal card, in which the man Body brazenly informed collectors that for a small sum he would nicely rechip into perfection all broken objects. Being well aware that all true collectors would treat with contempt such an offer and that all those who took advantage of it were not worthy of protection, the matter was dropped. At that time, and when editor of "The Archaeologist," the writer was not liked very well by a lumber of dealers. He delighted too much to put on the rack the frauds then spreading their wares over the whole country. As there seemed to be none to aid in the good work that attempt was given up in disgust.

For some time the writer has watched the efforts of this journal in this commendable undertaking, and hopes all true archaeologists will aid in suppressing these scamps. He is glad to know that Congress is to be informed of this matter and will certainly tell our representative here to do all he can in the formation of a law which will make the manufacture of frauds a penal offence. The senators of different states should also be written to.

A. F. BERLIN.

Allentown, Pa., November 22, 1898.

To the Editor:

Among the many good things I read in the October Archaeologist, the editor's remarks on the proposed teaching of the Spanish language in our public schools, particularly pleased me, having had frequent occasions to observe how much the speaking of the English language, of itself, has done toward making patriotic citizens of foreigners who come here to reside permanently. I have noticed the honest pride with which some of our adopted citizens have acquired the use of our language under difficulties, and how greatly it has influenced their children to become Americans in feeling and spirit.

Notice those settlements in the Northwest where Scandinavians are largely in the majority and their language is taught in their schools; they are far behind their countrymen in other localities who have acquired English and take pride in having their children speak it. Your suggestion regarding the act of Congress enabling New Mexico to become a State, requiring the right of suffrage there to be based on ability of the voter to read and write the English language, I consider to be eminently proper, and this qualification for suffrage should be required in every State of the Union. There is no one thing that can have the same effect in transforming a foreigner who casts his lot with us into a patriotic and valuable citizen so speedily and effectually as for him to adopt our language at once.

While I was United States Indian agent, here in California, in my intercourse with the Indians in my charge, I persistently refused to speak a word of Spanish, and pretended not to understand it, and always endeavored to impress it upon them that the English was the only proper language for them to make use of. I found them celebrating the anniversary of Mexican independence as a holiday, and introduced among them the United States flag, and taught them, through their schools, what it meant, but the strongest influence exerted over them came through teaching them the English language.

South Pasadena, Cal.

H. N. RUST.

Editor of The American Archaeologist:

In the October number, and under the caption of "The Northwestern Archaeological Survey," etc., you no doubt do me an injustice, which, in all fairness, should at once be corrected. Let it be understood, however, that no personal criticism is intended, nor ill-feeling entertained, because of the publication, believing, as I do, that it is your aim and wish to be fair and honorable with your subscribers, and all others as well. Therefore, I desire the necessary space in your valuable magazine to correct the errors referred to, and which, when understood, will change the dark aspect of this matter to one of a brighter hue. Allow me to briefly quote some of the most objectionable parts:

"During the progress of this work, and after Mr. Hill's death, Professor Lewis published as his own, and sold, many of his special surveys, some illustrated by maps drawn by Mr. Hill, without giving his employer credit for any agency in them."

It is assumed that this refers more particularly to my articles, forty-eight of which were published previous to the death of Mr. Hill, and thirty-three of them sold in pamphlet form. Most of the material for twenty-three of these was taken from the survey, and of the remaining twenty-five nearly all of the material was my own property, on which no one had even the slightest claim. All of these articles passed through the hand of Mr. Hill, he making the final copy for the printer, as well as nearly all of the diagrams; these being facts which may be verified by referring to the editors of any of the periodicals

in which they were originally published. Of the three articles published since the death of Mr. Hill, the material for only one was taken from the survey, and that one was written at the urgent request of Mr. Hill, but not published until some time thereafter. It may here be stated that all the notes taken by me on the Itasca Lake trip (including the material used in the above-mentioned article) was also furnished to Mr. Brower (at Mr. Hill's request), and more or less of it published by him in "Prehistoric Man," etc. Under my agreement with Mr. Hill, he "sold" many of the reprints and filled your order for nearly a complete set of the same. The correspondence may have been conducted in my name; and, if so, he was fully authorized to use it.

At the time I first became connected with Mr. Hill, in 1883 (not 1881), and for some years thereafter, he was employed as a clerk in the land department of the St. Paul, Minneapolis and Manitoba railroad (see Newson's *Pen Pictures of Old Settlers*, etc.), and knowing business men's opinion of those having a scientific turn of mind, i. e., that they were "cranks and not to be trusted," it became a part of the original agreement that he was not to be known in connection with the survey; and, at the time of his death, not ten men in the State were aware of the fact. And, even at this late date, but comparatively few of the citizens of this city know of even the existence of the survey.

"This, and other acts of Professor Lewis, occasioned much comment and drew upon him severe censure from different quarters."

That there is nothing in this is well illustrated by the action taken by the Executive Council of the Minnesota Historical Society (who are thoroughly familiar with every phase of the case that is known to the public or the courts), and is a sufficient answer thereto. The following is taken from the St. Paul Pioneer Press of September 13th: "Professor T. H. Lewis, of St. Paul, was elected a life member. Professor Lewis for many years was associated with the late Alfred J. Hill in archaeological investigations, having gathered much information regarding Indian mounds all over the State."

The statement that the pamphlet was issued "to satisfy public curiosity, and as a sort of personal vindication," is incorrect. The reason therefor was that those interested in archaeological research should know what had really been accomplished, and that my best friend, the late Alfred J. Hill, should have the credit to which he is entitled; for, as matters now stand, there is very little prospect of the results of the survey ever being given to the world. Then, again, should the survey be sold, it is not very likely that the purchaser would pay the price asked, perfect it and then give credit to those formerly connected therewith. In other words, it is not probable that the archaeological world will find another Alfred J. Hill very soon. Such men are indeed rare.

In conclusion, I will say that the Northwestern Archaeological Survey was not the only one carried on during the same period—1878 to 1895. I made "The Southern Archaeological Survey," covering a somewhat larger territory, entirely at my own expense, using the winter months to accomplish the results. This survey begins within seventy miles south of a well-defined line (East St. Louis, Ill., being the most southern point), as agreed upon with Mr. Hill, and extends to the Gulf coast. The eastern limit includes Ohio, and the western, Texas. The survey includes more than 11,000 mounds, besides enclosures, pictographs, etc.; and the cost (cash paid out) exceeds \$10,000. In the past I have done nothing to be ashamed of or to regret, but in the words of the poet, "Oh, why should the spirit of mortal be proud?"

T. H. LEWIS.

St. Paul, Minn. 406 Maria Avenue.

[We disclaim any intentional injustice to Professor Lewis in our late notice of his pamphlet, and unhesitatingly retract all statements therein inconsistent with actual facts. Without personal knowledge of the business relations existing between Mr. Hill and Professor Lewis our comments were based upon certain sources of information that—perhaps biased by ulterior motives—may have distorted, or misrepresented, the truth, as he states it.—Editor.]

EDITOR'S DEPARTMENT.

DR. J. F. SNYDER, EDITOR, - - - - - Virginia, Ills.
 PROF. A. F. BERLIN, ASSOCIATE, - - - - - Allentown, Pa.

All communications for the Editor must be addressed to Dr. J. F. Snyder, Virginia, Cass Co., Ills.

This number of *The American Archaeologist* completes its second volume. The merits and defects of our work for the year just expiring, as well as for the preceding year, have passed before the public for its judgment, and—so far as we can learn—the verdict rendered is not unfavorable. The present age is so prolific of literature that it affords to every science, art, profession, industry and amusement its exclusive organ. Each of them, from Theology to Football, have from one to many publications devoted specially to its interests. The field we chose, and have endeavored to occupy as an exponent, is that of the Study of Man, or Anthropology. Commencing on an humble scale, we have been compelled by our limited space to restrict our labors chiefly to the Study of Man in the past, or Archaeology, intending in time to enlarge our publication and sphere of investigations so as to compass the various departments of learning bearing upon the natural history of Man from the earliest period of his existence to the most recent. By reason of various causes—mainly, the want of sufficient patronage—we have not, as yet, succeeded in carrying into effect our projected expansion; but hope that, with the revival of business and financial prosperity following the restoration of established peace, it may not be long before we will be enabled to accomplish it. In the two years of our self-imposed task we have faithfully endeavored to redeem the pledges and promises we made in the initial number of our *Antiquarian*. Though too cramped in our thirty pages to cover all the ground we expected and desired to, we have not entirely ignored the Science of Anthropology in its broadest scope; nor have we altogether neglected its subdivision of Ethnology; and have measurably succeeded in making our magazine distinctively the organ of American archaeologists, conducted by archaeologists, for archaeologists. The circle of persons in America interested specially in the sciences we presume to represent is not large. We have tried hard to enlarge it by simplifying and popularizing the subjects we have treated, thereby rendering them more attractive to the non-scientific, as well as to mature scholars. We have managed to interest in our undertaking some of the ablest scientists of our specialty in the United States and British Columbia, whose contributions to our pages have broadened the area of human knowledge and commanded wide and earnest attention. We have done something towards correcting certain villainous abuses, and raising the popular conception of archaeology from that of mere curio-hunting to its proper dignity of a well-defined and important science. We have kept pace with the progress of anthropology the world over, and have given accounts, in full or abridged, of all late explorations and discoveries, together with discussions and opinions of high value by our patrons and others. In the two years of its ministration our periodical has not always been free from mistakes; but we have frankly admitted our errors, and improved in all respects by reason thereof.

With the beginning of the new year *The American Archaeologist* will enter upon its third volume with encouraging prospect and—we hope—a firmer hold upon popular appreciation manifested by not only a renewal of all present subscriptions, but also by a largely increased patronage. We are very desirous

of extending our circulation; for upon the extent of the patronage and co-operation of every archaeologist and student necessarily depends our contemplated improvement and enlarged efficiency and usefulness.

John Fiske says, in the *Atlantic Monthly*: "I forget whether it was some whimsical man of letters like Charles Lamb, or some such professional wag as Theodore Hook, who took it into his head one day to stand still on a London street, with face turned upward, gazing into the sky. Thereupon the next person who came that way forthwith stopped and did likewise, and then the next and the next, until the road was blocked by a dense crowd of men and women, all standing as if rooted to the ground, and with solemn skyward stare. The enchantment was at last broken when someone asked what they were looking at, and nobody could tell. It was simply an instance of a certain remnant of primitive gregariousness of action on the part of human beings, which exhibits itself from time to time in sundry queer fashions and fads."

A very common exhibition of this propensity of mankind—or survival of his animal instinct of mimicry—is everywhere seen in the prevalent "fad" of making collections of various articles, as postage stamps, autographs, coins and medals, gems, fossils, Indian relics, etc. The desire to acquire and hoard up these things arises in general from that inherited imitative impulse that binds certain species of birds and animals together in flocks and herds, living and moving in unison almost automatically, by each individual following the example of its leader. This is mainly the adhesive force in the church, in political organizations and in society. The collection of Indian relics, for instance, is commenced in a community by a scholar who wants them to extort from their study an account of the life, evolution and culture of a little-known race that passed away leaving no other records of its existence. Straightway the collection of relics becomes a "fad" by persons totally ignorant of their import and interpretation, and whose sole estimate of their value is gauged by the price they will sell for in market. If a student is observed collecting any certain commonplace objects with the view of their chemical analysis or microscopic examination, there are ignorant and mercenary people who will at once industriously gather up all objects of that kind they can find, store them away carefully and regard them as precious beyond price. Some years ago, when passing the residence of a wealthy farmer, the writer observed in a corner of the spacious front yard an Indian skull, two rude little pottery vessels and a few prehistoric stone implements, which, we subsequently learned, had been plowed up in the spring from a low mound on the adjacent bluffs by one of the hired hands, who brought them to the house and threw them down there, where they had remained almost unnoticed during the entire summer. At the time our engagements were such that we could not stop to examine them and negotiate for their possession: which, we inadvertently told a neighboring farmer, we intended to do at our earliest convenience. A month or more elapsed before we again visited the place. In the meantime the opulent farmer had been informed about our archaeological collection and zealous exertions to increase it. On arriving at his mansion we saw that the relics had disappeared from the lawn; but soon discovered them, on entering the parlor, arranged on the marble mantel with several water-worn pebbles, pieces of broken china, mussel shells, etc. And there they remained; for the knowledge he had gained of the collection we were making had suddenly given to those objects, before regarded by him as worthless, such a value that he refused to part with them on any terms. This is by no means an isolated case, for collectors of natural history specimens often meet with the same annoying experience.

Many of our readers remember the strange "memorial button" fad that raged through the country as an epidemic for a few years following the close of the civil war, when old and young, chiefly of the gentler sex, became wildly enthusiastic in collecting buttons. It was not uncommon while that craze lasted for garments to be entirely stripped of their buttons by pestiferous collectors; and in many instances they paid exorbitant prices for rare and fine varieties.

This same psychological vagary is the underlying incentive of many of those individual archaeological collections from which common and rude objects are rigidly excluded, and only "fine things," or "rare things" admitted, in order that the collector can boast of having "a finer lot of things" than anyone else. And of little more importance to science are those promiscuous collections of Indian antiquities without labels, catalogues, or other record of localities, associations, or history of the specimens. Such collections proclaim their collectors to be of the imitative class; only gatherers of "curious things"; not students imbued with that intelligent spirit of inquiry, and depth of thought, that strive to discover in prehistoric Indian remains the fragmentary key to profound problems of human life which, so far, have defied and baffled the best efforts of our ablest men. Fortunately, however, there is a saving clause in collections of this class. With those who make this sort merely because they have seen others do so, money is usually a recognized factor more potent than knowledge or science; and, its power ultimately draws the "fine and curious things" into the large museums where their real worth is appreciated and utilized by students in their attempts to penetrate the dark gloom that obscures the Indian's early history.

The counterfeiting of relics of antiquity is comparatively a new industry in this country; but has been diligently prosecuted about the classic ruins of the eastern hemisphere since a demand for them was first created, long ago, by visiting tourists. But few persons who have journeyed to the pyramids and temples of Egypt have, while there, escaped the persistent annoyance of Arab venders of bogus scarabees and sacred vases. Imitation relics of all ages are openly sold in Athens and Rome; and perfect copies of art products, of twenty centuries ago, recovered from Pompeii and Herenlaneum are hawked about the streets of Naples and the vicinity of the buried cities. In Jerusalem, Baalbeck, Cairo and in many of the large cities of Europe relic factories have been extensively operated for many years. Prof. Holmes figures, in the Smithsonian Annual Report for 1886, several well executed imitations of highly decorated vases and images of ancient Aztec art manufactured at San Juan, Mexico, and states that spurious objects from that factory have found their way into the archaeological collections of the Mexican National Museum, of our own National Museum, and in museums and cabinets all over the civilized world. And now we learn that the Antiquarian Society of Dublin has recently discovered a flourishing relie factory at Ballymena, County Down, in Ireland, where flint implements, stone axes, celts, etc., are turned out by hundreds. The shrewd crooks operating that plant, it seems, do not rely on relic dealers of elastic conscience to distribute their frauds—as in this country, but first place them in the red ashes of peat fires for a time, to give them the appearance of high antiquity, then bury them in the ground at certain favorable places where they are subsequently dug up by seemingly ignorant peasants in the very presence of gullible collectors, who, of course, eagerly buy them at round figures. This Cardiff Giant mode of "salting down" very ancient (?) palaeoliths is said to be profitably practiced also about some of the noted deposits of glacial drift in certain departments of France. This method is an improvement on the bare-faced swindlers we have here, inasmuch as it dispenses with false guarantees of genuineness and saves commissions on sales.

NOTES.

An ancient Roman hospital has been brought to light at Baden, near Zurich, the discovery having been made in connection with recent excavations at Windisch, the Roman Vindonissa. At Vindonissa the two great Roman roads met, the one leading from the Great St. Bernard along Lake Leman and then by Aventicum and Vindonissa to the Roman stations on the Rhine: the other leading from Italy to Lake Constance by the Rhaetian Alps, the canton which is now Winterthur, Baden, and Windisch. The last point was the station of the seventh and eighth legions, and close by the Roman road the hospital has been discovered. It contains fourteen rooms supplied with many kinds of medical, pharmaceutical, and surgical apparatus, the latter including probes, tubes, pincers, cauterizing instruments, and even a collection of safety-pins used in bandaging wounds. There are also medicine spoons in bone, and silver measuring vessels, jars, and pots for ointment, some still containing traces of the ointment used. The excavations have also revealed a large number of silver and copper coins, the former belonging to the reigns of Vespasian and Hadrian, and the latter bearing the effigies of Claudius, Nero and Domitian.

Prof. Charles F. Holder, the scientist and author, has just made an examination of an interesting cave recently discovered on Catalina Island. The cave is almost filled with debris, shells and black earth, and was evidently used for centuries by the early natives. On the face of the huge rock were several native hieroglyphics. Over the doorway was a large eagle's nest. This is one of the most interesting of the rude homes of the men of the stone age ever found in California.

A. M. J. H. Fisher, of Redlands, Cal., while with an exploring party in the San Jacinto Mountains discovered a crevice between two large boulders, which upon examination proved to be the entrance to a cave. By hard work he succeeded in making his way into the cave, and with lights found it to about ten feet across and eight feet from floor to ceiling. The floor was strewn with bones and there were four jars of burned earthenware, filled with various kinds of seeds. They are artistically decorated.

Near the new town of Alamogordo, New Mexico, are the ruins of a once large Indian pueblo. The outlines of some of the buildings are yet visible, and old stone axes and mortars, such as are used by the natives for grinding corn are to be found. Judging from the location of the old pueblo water was furnished to the inhabitants from La Luz river or canyon.

"A new Pompeii," says a contributor to *La Nature* (Paris), may, perhaps, be an exaggeration, but it is certain that, if published reports are true, the German archaeologists who are excavating on the territory of ancient Priene have made a discovery of the highest interest. It is well known Priene is in Asia Minor, and that the modern city of Samsoun occupies its ancient site. Several years ago an English expedition unearthed and studied the temple of Minerva, the chief sanctuary of the city, built by order of Alexander; but its ruins, although interesting, were abandoned, and they have since been despoiled by the inhabitants of the neighborhood. In 1895 the Germans resumed the exploration of the region in behalf of the Berlin Museum, at the expense of the Prussian government and under the direction of a young architect, Wilhelm Wilberg. The work of excavation is already sufficiently advanced to enable us to judge of its rare importance; a whole city is being unearthed, in almost as good preservation as Pompeii. And this is the more important because up to the present no similar discovery has ever been made that gives precise indications of the general arrangement of a Greek city, of its public monuments, or its individual dwellings. The city thus exhumed is assuredly of the period of greatest Greek beauty; the streets cross at right angles and are laid out with the greatest regularity, and we can identify colonnades, theatres, market-places, shops and houses with their decorations and interior arrangement. South of the temple of Minerva has been found the agora, surrounded with great colonnades, while opening on one of its corners is a small square edifice somewhat resembling a theatre and constituting perhaps the place of meeting of the city council. It is in admirable preservation, and sixteen rows of seats can be seen still in place. Worthy of note is a vault in one of the walls—a thing extraordinarily rare in Greek architecture. We should add in closing that among the structures that have been entirely exhumed is a theatre whose scene is intact, which will doubtless solve some of the problems connected with this special part of the Greek theatres."—*The Literary Digest*.

While Contractor James Doyle and a large force of men were excavating for a sewer near Ten Mile Creek in Auburndale, Maumee county, Ohio, they came across two peculiar stones at a depth of 17 feet from the surface. After cleaning them off and hoisting

them to the surface it was found they were a peculiar red stone unknown here. An examination showed that the stones were the work of some sculptor. On one stone was the perfect carving of the head of an Indian maiden. The stones weigh about 400 pounds each, and are 18 inches in diameter. Mr. Doyle took them to his home. The stones are covered with hieroglyphics.

In his excavations at Corinth, Prof. R. B. Richardson, director of the American School at Athens, has discovered, it seems probable, a stone of the ancient synagogue where Paul preached during the first part of his stay at Corinth (Acts 18:4). The stone, discovered about six feet below the surface, is "a marble block about three feet and a half long, with one of its broad sides elaborately and peculiarly carved, showing a row of somewhat sunken dentils with a projecting band of molding below it as well as above. On what was once its upper side or edge was cut an inscription, mutilated at both ends, in letters about two inches high, running thus: AGOGEEBR." These letters Prof. Richardson takes it to be all that is left of SUNAGOGEEBRAION, "synagogue of the Hebrews;" and it is impossible to doubt that he is right. Though the block may once have been part of an inscription relating to the synagogue rather than a part of the building itself, the discovery is of the utmost interest.

By permission of the President and Council, Prof. Flinders Petrie, D. C. L., opened at University College, Gower street, London, an exhibition of Egyptian antiquities discovered last year by himself (acting under the authority of the Egypt Exploration Fund), at Denderah, near Abydos, and by Mr. Quibell and others (acting for the Egyptian Research Account), at Hierakonopolis, known to Egyptologists as the ancient city of Nekhen, the ruins of which are now called Kom-el-Ahmar.

The interest attaching to the latter discoveries is, as we are informed by Prof. Petrie, of the very highest, for whereas until now the remains of the primitive Kings—the period is about B. C. 4000—have been all "sepulchral," here, on the contrary, were monuments of warfare and of history, the first such known to belong to the earliest dynasties. Unhappily, the present exhibition is said to be more disproportionate to the actual discoveries than usual, for the Egyptian Government naturally claims all the finest and most valuable objects, which are placed in the Ghizeh Museum, at Cairo. One room is set apart entirely for Mr. Quibell's extraordinary discoveries, which include relics of the pre-dynastic times, and figures evidently belonging to the Libyan race who occupied Egypt then. Most of the objects in this room are dated before the Fourth Dynasty; that is to say, at least 3500 years before Christ.

More enthralling, however, if less important, is the room in which Prof. Petrie's own finds are exhibited. The area of excavation was the cemetery adjoining the temple of Denereh, or Denderah, the ruins of which were long ago shown to be of spurious value, although at one time they were regarded as threatening all received Biblical history. It is, however, almost certain that a previous temple existed upon the same site, and it will be a happy day for the antiquarian when permission is given to excavate within the ruined walls of the Cleopatra structure. In the cemetery outside no tombs earlier than the Fourth Dynasty could be found, but it is a curious and interesting fact that many remains of the Ptolemaic period, and of the Roman age even up to the fifth century, have been unearthed. None of these, unhappily, give the slightest shred of evidence that Christian influences had spread into the land of the Pharaohs.

The exhibition consists mainly of great slabs of stone, pottery and bowls of the "Old Kingdom" bearing inscriptions relating to the earlier Kings. An attractive group is that of a mirror, a diorite shell, small diorite dish, a porphyry vase, two alabaster vases, and one of limestone, all found together in a woman's grave—a dressing room set, probably. Of the "Middle Kingdom" the tomb of another woman yielded a small mirror and a necklet of garnet and silver beads. A hollow silver "torque" was in another burial, and "a very rude doll of pottery" was found in a mass of bodies with objects of the Twelfth Dynasty, which recalls the fact that at Tel-el-Fayoum eight or ten years ago Mr. Petrie found a number of well-preserved tip-cats belonging to the same period—the period, that is, of the patriarch Abraham. Many bodies of animals were brought from the catacombs. On the skulls of the Hat-hor cows' hair may yet be seen, and the feathers of mummied hawks are still to be traced after their 5000 years of interment.

The exhibition will be open daily at University College from 10 a. m. to 5 p. m. until July 30. The ultimate destination of the exhibits is not yet known, but some of them will undoubtedly be claimed by the authorities of the British Museum.

Mr. A. A. Moore, a student of archaeology, who lives in San Francisco, made an interesting discovery a short time ago on Catalina island.

Accompanied by Herbert Landers, Thornton White and Arthur Goodfellow, he went to the Isthmus in the Fleetwing in search of Indian relics.

After some search a number of sepulchral mounds were found, which upon being opened disclosed the well-preserved skeletons of a man, woman and child.

The skeletons were incrustated with shells and a charcoal-like substance.

An aboriginal feather dance given a short time ago at Agua Caliente, California, is described below:

While Los Indios de la Mesa were having a siesta, an old Indian swept the dancing floor clear of rocks. Ramon La Chusa, el hechicero (witch doctor), went carefully over the floor, whirling a buzzing stick, to induce the evil spirits to chase themselves.

After an interval of a few minutes, Crisanto, one of the Tataweil, or feather dancers, came out, his body striped with paint and wearing a breech clout, over which was worn a girdle of eagle feathers. After bowing down before the witch doctors, he commenced skipping around the ring, keeping time to a rattle. Repeating the performance a few times he retired. Manuel Duro, the famous feather dancer, skipped into the ring, keeping time to a couple of sticks which he beat together. On approaching the witch doctors he bowed down before them, touching the ends of the sticks on the ground and repeating something in Indian. This part of the ceremony being concluded, he commenced the great Tataweil, by whirling around the thirty-foot ring, keeping time to the rattle operated by the hechiceros. The dancing was simply wonderful. In making whirling motions the dancer would lift one foot, turn half way round and then lift the other foot, continuing the whirling to the time of the rattle.

In the Historical Art Treasures of Windsor Castle, belonging to Queen Victoria, is a life-size tiger's head formed by thick plates of solid gold laid over carved wood. The eyes and teeth are of rock crystal, the tongue is of solid gold, as are also the two massive paws on which the head rests. At one time there was attached to the tongue one of the finest rubies known to the world, but this has long since disappeared. This head was the center and largest of nine which surrounded the wonderful jewelled throne of Tippoo Sahib, once a powerful Hindoo potentate.

Solomon Reinach, the archaeologist, has attacked the Venus de Milo, declaring that she is no Venus, but an Amphitrite. He bases his theory on the fact that a statue of Poseidon was found at Milo in 1874, which is of the same size as the Venus, and tries to supply the missing parts of the statue on the supposition that it represents the sea goddess.

The Mexican antiquarian, Don Francisco Rodriguez, recently discovered at the little village of San Anton Analco, separated from Cuernavaca by a barranca, a rock showing the sculptured figure of a large lizard. The rock was discovered in the garden of some potters and was almost overgrown with vegetation and it contained other carvings, beside the lizard. The common people in the vicinity call the figure the "Lagarto de San Anton," as they consider the carving represents an alligator, but educated people who have examined it carefully say that it has the figure of a lizard simply, though several times amplified.

The figures found were at once supposed to be of a chronological character and Mr. Rodriguez, by dint of patient research, made out that the date which they indicated was May 23rd, 1457. It was at first supposed that the date was that of the dedication of the great teocalli at Tenochtitlan (Mexico), but as that dedication occurred on July 21st, 1457, it is clear that the date on the San Anton monolith refers to some other event. The remains in question are referred to the Halhuica, Xochimilca and Cohuixca tribes.

Seeing Mr. Rodriguez's interest in the matter one of the dwellers in San Anton told him that a similar rock had recently been discovered but that it had been hewn to pieces to make a stone fence. Mr. Rodriguez found some figures on fragments of this rock.

In the Museum of the University of Pennsylvania there is a unique and, at this time, an interesting collection of crudely carved idols and curious old weapons which at one time were worn or used by the natives of the Philippines in war.

This remarkable collection is the only one of its kind in the United States and gives an insight into the manners and customs of the inhabitants of a land which is destined to become soon the property of Uncle Sam.

The collection was deposited at the University by C. Howard Colket, who purchased them in the Rastron (rag fair), Madrid.

The idols are of wood, and as ugly as idols usually are. The ones shown in the illustration are relics of the ancient Igorrotes. They are male and female. The male carries a spear and a sword; a shield may be mortised to the hand, and into his engirdling colored cloth is stuck a characteristic weapon. The dirk which the female has stuck in her zone would seem to prove she was expected to do something besides weep. They both boast earrings of coiled brass wire. These idols are not painted.

No one blames the Philippine Islanders very much for clinging to these idols for protection, after seeing the formidable weapons which were employed in warfare. Primitive as they are, they would arouse terror in the strongest heart. For instance, there is a weapon wrought from the blade of the sword fish. The base is cut smooth for a handle, while the blade has the terrible teeth of the natural weapon. It makes an observer shudder to think about a sturdy native bringing this weapon down on an enemy's head and then pulling it along sawlike, and pressing down a little at the same time.

The kreese, a short sword with an exquisitely carved handle and a graceful blade, is a weapon peculiar to the Malays, and was made famous by the Visayas, a Malay tribe inhabiting the islands south of Luzon, where the capital, Manila, is situated, and who, although they had attained a comparatively high civilization when the conquering Spaniards came, not only accepted Christianity, but aided them in subjugating other tribes.

Wonderful, indeed, is the excellent iron working of the natives of the Philippines. Their wonderfully wrought fine steel shows many lines rather than any symbolical design. The significance of that weapon with a show of hair that would call for a testimonial hereabouts is not known, but it looks suspicious. A native who had a relative unaccounted for would surely have felt the cold chills running down his spinal column if a suspicious-looking warrior approached carrying the barbarous affair.

Professor Stewart Culin, of the University of Pennsylvania, states that the most wonderful collection from the Philippines is in Madrid, in the Museo del Ultramar, or Colonial Museum, in the Municipal Park, a museum which owes its existence to the Colonial Exhibition held in Madrid a few years ago. A colony of natives was at that time brought from the islands, and they built their dwellings in native fashion on the plaza in front of the main exhibition building. These curious dwellings now house the permanent colonial exhibition of which Senor Paterno, himself a native islander and representative of their highest culture, is the curator.

This Senor Paterno, it may be added, is the greatest living authority on the Philippines, and his private collection is the delight of antiquarians. In it are great celadon bowls, which the Chinese in the Qung dynasty, sent to the Philippines, packed full of tea or sweetmeats, just as they now send us jars of ginger. The natives used these jars to bury their dead in, and now, having been recovered from ancient graves, they constitute the most precious specimens of old Chinese porcelain known to collectors outside the Middle Kingdom.

Excavations have been made by Drs. Wilhelm and Reichel of the Austrian Archaeological Institute at the Temple of Artemis, at Lusoi, in northern Arcadia, discovered by Prof. Doerpfeld last year. The terrace of the temple was examined and the ruins of a semi-circular building and a propylæum were found, which had been destroyed by fire. Only part of the foundations of the temple could be uncovered, as there are buildings on the site, but architectural fragments, votive offerings, some novel terra cottas, small bronzes and a great many inscriptions of the third and fourth centuries before Christ were found.

M. Gayet, a French explorer, recently placed on exhibition at the Guimet Museum, Paris, France, a collection of Roman objects excavated by him in old Thebes upon the foundations of the city which the Emperor Adrian built in honor of his favorite Antinous, who was drowned in the Nile. Most of the objects found in the tombs are of the Roman epoch, and some are of the early empire. There are silks, beautifully woven, having the eagle with two heads or the lion rampant, and others are tapestries with colors as fresh as if they had come from the Gobelins looms of old-time perfection. Lovely little slippers, veritable Cinderellas, they are not more than No. 2s, with the tips of gilded leather, like fine book bindings, were also discovered. Equally curious is a little mirror backed with quicksilver and framed in terra cotta. It is not more than two inches large, yet the whole head and even the hat of the gazer can be seen in it. It is convex. This is the first time that a "looking-glass" having quicksilver has been dated so far back. The secret of it was lost during many centuries. But the most interesting part of the Gayet collection are the masks of terra cotta. They are the portraits of the dead, and were placed in their tombs. Some of them are pretty women, with all sorts of coiffures, even the bang, though evidently badly worn. If these explorers keep on exploring we shall soon be more than ever convinced there is nothing new under the sun. But Paris is delighted with the exhibition and with M. Gayet's success.

A. F. B.

